UNIVERSITY OF BRISTOL

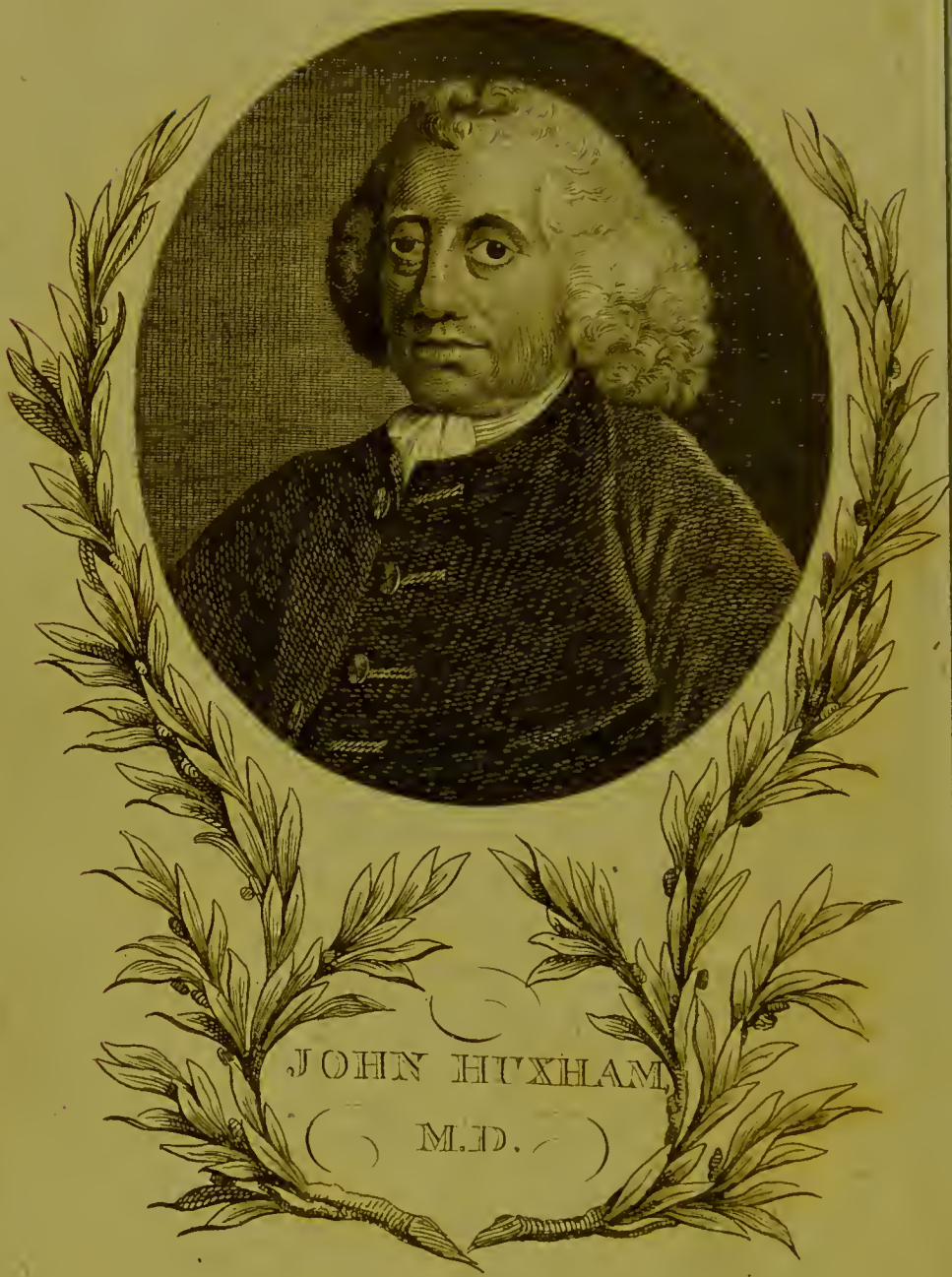
MEDICAL LIBRARY

Presented by

THE
BRISTOL MEDICO-CHIRURGICAL
SOCIETY

John Peter Powell

1223 to 1226



JOHN HUXHAM,
M.D.

AN

ESSAY

ON

FEVERS.

TO WHICH IS NOW ADDED,

A DISSERTATION

ON THE

MALIGNANT ULCEROUS SORE-THROAT.

A NEW EDITION.

By JOHN HUXHAM, M.D.

Fellow of the Royal College of Physicians at Edinburgh; and of the Royal Society at London.

LONDON:

PRINTED FOR G. LISTER, N° 46, OLD-BAILEY.

PREFACE.

ABOUT ten years ago I publiſhed a ſmall volume of Obſervations of the Air and Epidemic Diſeaſes, from the year 1727 to the end of 1737; and I have now finiſhed another volume of like obſervations, from 1738 to 1747 incluſive. In the latter, I think, I have been ſomewhat more careful and exact in the hiſtory of the reigning diſeaſes, and the method of cure. However, as it would have been too great an interruption to the ſeries of the obſervations, to have entered into particular diſquiſitions on the nature and cure of the ſeveral diſeaſes, there curſorily mentioned, I have reſerved them for the following eſſays; in which my way of thinking and acting as to fevers in general, and thoſe ſpecified in particular, will more fully appear; and this, I hope, will be of ſome ſervice to the younger practitioners, as theſe eſſays are the reſult of a pretty large and long experience, and the obſervations were made with the utmoſt care and diligence. Whatever be the event, I flatter myſelf they will be received as the honeſt endeavours of a ſincere well-wiſher, not only to his profeſſion, but to all mankind.

In the following eſſay, I have frequently referred to both the volumes of Obſervations, and, in the latter volume, often referred to theſe eſſays; ſo that, by theſe means, I have endeavoured mutually to illuſtrate both the one and the other.

Though I have all along ſtrictly kept cloſe to facts and repeated experiments (and where I have reaſoned from theſe, I have aimed at the juſteſt analogy) yet I have ſupported my doctrine and practice very frequently by the authority of the ancients, particularly Hippocrates. And this I have the rather done, as well knowing of what great uſe they were to me in the courſe of my ſtudies and practice; and alſo with a view of recommend ng theirfrequent peruſal to young phyſicians. But although my advice perhaps, in this matter, may have no great weight, yet I hope the concurrent judgement of the greateſt maſters in our profeſſion, will be duly regarded.

I will not take upon me to ſay a perſon cannot be a good phyſician without conſulting that great oracle of phyſic, and reading the ancients; but this let me ſay, he will make a much better phyſician for ſo doing. And I believe few, if any, ever

made any conſiderable figure in the profeſſion, who had not ſtudied them. Indeed, Hippocrates hath been accounted the very father of phyſic, and the plan which he laid down, as the baſis of all true and ſolid medicine; and it hath been conſtantly held in the higheſt veneration by all his ſucceſſors; at leaſt by all thoſe who were capable judges of the matter. The reaſon of which is evidently this, that he ſtudied nature with the greateſt care and aſſiduity, and copied and followed her too, with the greateſt exactneſs; ſo that his obſervations have been found perfectly juſt through all ſucceeding ages.

It is not in phyſic only, but in ſeveral other arts, that the ſtudy of the ancients is of the utmoſt advantage, and is univerſally allowed to be ſo. Whoever would excel in poetry, ſculpture, ſtatuary, &c. muſt always conſult the works of the ancient maſters in theſe reſpective arts, as the moſt perfect models, and moſt juſt copiers, of nature; and it is not in poetry only, but in phyſic alſo, that Horace's advice is good;

——— *Vos exemplaria Græca*
Nocturnâ verſate manu, verſate diurna.

In truth, the ancients were not only men of vaſt genius, but of the greateſt diligence, and unwearied application (the Roman hiſtorians have always in the character of their great Men, *incredibilis induſtria, diligentia ſingularis*) who kept their eyes ſteadily fixed on what they would deſcribe, and gave us the true picture and naked truth of things, which is infinitely more beautiful than all the affected daubing and flouriſhes of a modern luxuriant imagination. The more juſt the deſcription, always the more excellent. What is a portrait good for, that is not like the original? As nature herſelf, the more accurately viewed, is the more admired, ſo he that gives us the trueſt copy of her face, will ever be deemed the greateſt maſter. In this Hippocrates ſo greatly excelled, that he had the united applauſe of the nations around him, nay, they even paid him divine honours; for by this he was enabled to heal, as well as to know and deſcribe diſeaſes. I am fully perſuaded, had this method been ſtrictly followed by ſucceeding phyſicians, the art of healing would have long ere this time been carried to a much greater height than it is at preſent; which hath by no means kept pace with the many and great diſcoveries that have been made ſince (eſpecially within this and the laſt century) in natural philoſophy, anatomy, the *materia medica*, and chemiſtry. Indeed, as man is by nature mortal, it is impoſſible that art can make him immortal; but ſurely it is very poſſible it may ſupply ſomething more exact and determinate than we have at preſent.

From

From the days of Galen, and indeed long before, vain hypotheſis, the love of novelty, the faſhion and faction of phyſic, too often led its profeſſors devious, and attached them to error; and it is too well known, the ſame misfortunes ſtill attend us. However, it muſt be acknowledged that all the ſober, regular, judicious practice, hath been always conſonant to the Hippocratic doctrine; as hath been ſhewn at large by the learned Dr. Barker, in his late Eſſay, to which I refer the reader, and to Dr. Glaſs's ingenious Commentaries for a Scheme of the Practice of Hippocrates.

I am ſo far from blaming a rational theory in phyſic, that I think it the baſis of all juſt and regular practice; but then it ſhould be, as Hippocrates adviſeth Κατὰ φύσιν θεωρέων.* If ever phyſic is to be improved, it muſt be in ſuch a manner, and not by chimerical hypotheſes, nor raſh unwarrantable quackery. A diligent ſtudy of the ancients therefore, and a thorough acquaintance with the laws of the animal œconomy, as rationally delivered by ſome of the moderns, ſhould be the buſineſs of every phyſician; but ſome are more expeditiouſly popped into the world. To be the favourite of a great man (or, what is rather better, a great woman) to be the tool or fool of a party with a ſplendid equipage, and no ſmall ſhare of aſſurance; theſe are qualifications which finiſh the doctor, to the reproach of the profeſſion, and the danger of the ſociety.

Celſus hath been juſtly ſtiled the Latin Hippocrates, not only as having tranſlated an infinite number of paſſages from the divine old man in his works, but alſo as having generally followed his method and medicine. His Latinity is moſt elegant, his phyſic and ſurgery ſurpriſingly juſt. †

No

* *De Vict. acut. Sect.* xlvi. *Edit. Lindeni.*

† Although I am far from thinking that Celſus was a practitioner of phyſic, in the common ſenſe of the words, as Aſclepiades, Themiſon, and Caſſius were; yet he had certainly well ſtudied it, and diligently peruſed the moſt conſiderable and beſt authors then extant in phyſic and ſurgery—chiefly, perhaps, as a philoſopher, who made the whole ſtudy of nature his buſineſs, like the ſages of old, by whom, as Celſus himſelf ſays, "*medendi ſcientia ſapientiæ pars habebatur, ut et morborum curatio et rerum naturæ contemplatio ſub iiſdem auctoribus nata ſit—ideoque multos ex ſapientiæ profeſſoribus peritos ejus fuiſſe accepimus.*"—And therefore Columella very juſtly ſtiles him *univerſæ naturæ vir prudens*—for indeed he not only wrote of medicine, but of agriculture, the diſeaſes of cattle, &c.

That he was even converſant in the practice of phyſic and ſurgery, is pretty evident from his books *de Medicina*, in which he gives a very judicious account of diſeaſes, and the method of curing them, and very exact and particular directions in the chirurgical operations, even to the minuteſt circumſtances of dreſſing and bandages; inſomuch that it ſeems very probable that he actually performed himſelf, or at leaſt had been very often preſent at ſuch operations.

Beſides, he appears to have been very well acquainted with the *materia medica*, and

No one hath more juſtly followed Hippocrates than * Aretæus Cappadox, ſo far as to have affected his very words and

and method of compoſition, and hath carefully laid down particular directions relating thereto, and a preciſe account of the weights and their ſubdiviſions, by which he would have the medicines compounded.

It may be ſaid, indeed, that he compiled the chief part of this work from the moſt celebrated authors that preceded him—unqueſtionably he did ſo; but then he hath, in very many places, interpoſed his own adviſe and opinion, and that too very often contrary to the ſentiments and directions of his moſt favourite authors, Hippocrates and Aſclepiades.

Upon the whole, I cannot but think the attentive reader will find in Celſus a great number of paſſages, which will incline him to believe that that author was very well verſed in the practice of phyſic and ſurgery. Several ſuch the learned Dr. James Grieve hath cited in the preface to his tranſlation of Celſus—and I beg leave to point out a great many more; but to avoid being tedious, ſhall only ſet down the number of the pages in Almeloveen's edition of Celſus (with which the Paduan, publiſhed by Vulpius, 1722, exactly tallies) where paſſages to this purpoſe may be found—had it been neceſſary, I could have added many more.

Page 4—19—26—29—30—81—89—90—91—96—111—122—129—140—144—150—152—159—165—176—181—194—197—200—204—227—230—232—242—249—263—271—296—318—332—338—360—364—393—405—406—408—409—416—426—440—441—446—458—475—477—509—512—517—528—530—546.

* It is pretty ſurpriſing that none ſhould take notice of Aretæus before Aetius Amidenus, in the fifth century; he is, indeed, named in the Euporiſta attributed to Dioſcorides, but few think that piece to be the genuine work of that author; neither Galen, Cælius Aurelian, nor Oribaſius, mention him, though ſo particular in enumerating all the phyſicians of note, antecedent to, or contemporary with them.—And yet Aretæus ſeems to have been a very conſiderable practitioner, and a man of great learning and judgement. He affects a very ſingular ſtile, uſing many obſolete words, Homeric and Hippocratic phraſes, and the Ionic dialect; which, at the time he wrote in, was almoſt entirely diſuſed; for notwithſtanding the conceit of Voſſius, he undoubtedly did not write till after the time of Nero. All this, one would think, ſhould have made him remarkable; eſpecially if he practiſed in or near Rome; which is not improbable, as he adviſes Roman wines to the ſick, particularly the Falernian, Surrentine, Signine, and thoſe of Fundi.

But farther, Galen and Aetius quote from Archigenes ſeveral paſſages, which are exactly the ſame as to ſenſe, doctrine, method of cure, and manner of expreſſion, with what we find in Aretæus; only the latter gives them the Ionic turn.—They both coincide in recommending ſome particular medicines, which are ſcarce to be met with in any others, particularly the external uſe of cantharides; which I think is not to be found in any preceding author, except Celſus.

Did Archigenes then borrow from Aretæus, or the latter from the former?

It is certain Archigenes practiſed at Rome with a very great reputation, was a very celebrated phyſician and author, and as ſuch is referred to by Juvenal, Galen, Cælius, Oribaſius, Aetius, &c.—He is ſtrictly criticiſed by Galen, ſometimes cenſured, ſometimes commended, but never reckoned a mere compiler.—Aretæus, on the contrary, is mentioned by none but Aetius and Paulus Ægineta; nay, which is not a little to be wondered at, he is not ſo much as found in Photius's Bibliotheca.—This is really ſtrange, and not eaſily accounted for, and would incline one to think that Aretæus borrowed from Archigenes; or rather tranſcribed and new modelled him, giving him the Hippo-

crates

and ſtile. His deſcriptions of diſeaſes are admirable, and his method of cure greatly judicious.

Galen ſhould be read by all that would conſult the moſt laboured and exact commentator upon Hippocrates; beſides, he abounds with an immenſe number of fine and uſeful obſervations in all parts of phyſic, and was the firſt that gave us any particular account of the pulſes, their difference and ſignification. It is pity there is ſo much of the Peripatetic and Periphraſtic in him. The world would probably receive a judicious abridgement of his works with no ſmall ſatisfaction.

Had Cælius Aurelianus written in the ſtile of Celſus, he would have been an invaluable author; as it is, we are vaſtly indebted to him for the whole doctrine of the Methodiſts, particularly of the judicious Soranus; as well as for the ſentiments of the ancients on very many diſorders, which otherwiſe would have been wholly loſt to us. Notwithſtanding his barbariſms, his deſcription of diſeaſes is moſt juſt and admirable.

One of the ancients more I would particularly recommend, that is, Alexander of Trallis, who, in moſt things indeed, follows Hippocrates and Galen, and generally gives them the epithet of Θειότατοι. But yet he hath an infinite number of uſeful remarks of his own, abounds with many excellent medicines, and writes in a very judicious and regular manner.

In the following eſſays I have not ſo much aimed at a particular and methodical diſſertation on the diſeaſes treated of, as to give a few hints and neceſſary obſervations as to their nature and cure, for this would have made the work voluminous, which, I fear, is even now not a little tedious.

I have given few or no *formulæ*, or preſcriptions; for, as Hippocrates ſays, he that knows the diſeaſe, knows what is proper to cure it. When a phyſician knows whether ſtimulants or anodynes, relaxants or reſtringents, attenuants or incraſſants are indicated, he can be at no great loſs how to ſerve himſelf of proper drugs, out of the vaſt *materia medica*, which we at preſent abound with. He ſhould ſelect a few of the

cratic diction and Ionic dialect.—Poſſibly Aretæus might do by Archigenes, ſomething like what Cælius Aurelin, not long after, did by Soranus. But, if ſo, he hath vaſtly much better græciſed Archigenes, than Cælius hath latiniſed (as he calls it) Soranus.—Upon this ſuppoſition, we need not wonder at finding the Roman wines recommended in Aretæus, though he might practiſe and write in Cappadocia, or any where elſe, at the greateſt diſtance from Rome. But theſe are my poor conjectures. Be the matter as it will, in Aretæus we have a moſt valuable work, a moſt accurate deſcription of diſeaſes, and, in general, a very proper and judicious method of cure; and it is greatly to be lamented that the work comes ſo maimed to us.

the moſt effectual for his uſe of each ſort, and ſtick to them, and not run into the immenſe *farrago*, which ſome are ſo fond of. By ſo doing, he will ſoon be acquainted with their real virtues and effects, and readily diſtinguiſh between the ſymptoms of the diſeaſe, and thoſe cauſed by the medicines, which is a thing many times of no ſmall importance. I have really ſeen in private practice, and ſome public writings, ſuch a jumble of things thrown together in one preſcription, that it would have puzzled Apollo himſelf to know what it was deſigned for: not but that there are frequently ſuch complications (and contra-indications too ſometimes) in diſeaſes, as makes ſome degree of combination and contraſt in a medicine neceſſary.

But a formula, or recipe, as it is called, can be of very little ſervice. Twenty or thirty grains of rhubarb ſhall purge ſome as much, as twice the quantity of jalap will others. One grain of Theban extract, or twenty drops of the tincture, will doze one as much as triple the doſe will another. Beſides, the conſtitution and manner of living of the patient muſt be conſidered, in preſcription, as well as the diſeaſe. A ſober, temperate perſon, or one that lives chiefly on milk, vegetables, and water, will by no means bear ſuch warm medicines, compound waters and ſpirits, as may be quite proper for thoſe who have dealt largely in ragouts and ratafia. But this is obvious, and ſo is this deduction, that we ſhould always begin with ſmall, or very moderate doſes of all kinds; and that not only the phyſic, but the drink and diet of the ſick alſo ſhould be prudently regulated; for ſurely what we uſe by ounces and pounds, cannot but conſiderably affect us, as well as what we take by grains and ſcruples. Hippocrates, and the ancients, were very careful in this particular, and very exact in preſcribing a regimen; and in this reſpect, likewiſe, young phyſicians would do well to conſult them. As for thoſe who will neither read nor reaſon, but practiſe by rote, and preſcribe at a venture, I muſt ſeriouſly adviſe them, at leaſt, to peruſe the ſixth commandment.

AN

AN ESSAY ON FEVERS, AND THEIR VARIOUS KINDS.

CHAP. I.

OF THE MOST SIMPLE, MORE COMPLEX, AND INFLAMMATORY FEVERS.

THE great Boerhaave, in his admirable *Aphoriſm de cognoſcendis & curandis Morbis*, begins with the diſcaſes of a ſimple fibre; and indeed the only method to attain to any conſiderable knowledge in any ſcience, is to begin from the very elements of that ſcience; for whatſoever is moſt ſimple is more eaſily underſtood, than that which is more complex; method and perſpicuity are the natural conſequence of ſuch a procedure.

Thus, in examining into the nature of fevers, it ſeems moſt proper to conſider the moſt ſimple of the kind firſt. Let us ſuppoſe then, a perſon, both as to his ſolids and fluids, in perfect health, engaged in violent exerciſe, as by running, or the like: this, if long continued, will greatly encreaſe the velocity, friction, and heat of the blood, which, when conſiderably above natural, are called a febrile ſtate. Here is then the moſt ſimple fever, ariſing from nothing but the encreaſed action of the ſolids on the fluids, and the re-action of the latter on the former; which ſoon ſubſides on the ceſſation of the motion, or violent exerciſe.

Let us next ſuppoſe another perfectly healthy perſon, expoſed to cold moiſt air, by which his perſpiration may be conſiderably ſuppreſſed; hence will follow an encreaſed quantity of humours, and an encreaſed effort of nature to throw them off, and remove the obſtructions: whence a feveriſh habit will follow, which, however, frequently ſoon wears off, by the kindly relaxing warmth of a bed, or the like, aſſiſting nature's endeavours.

A third, of an equally good conſtitution, drinks too largely of wine, or other ſpirituous liquors, which, encreaſing the quantity of humours, and alſo the motion of the blood by its ſtimulating quality, produces a fever, which in like manner ſoon goes off, by abſtinence, &c.

In any of theſe caſes, only a ſimple *ephemera*, or ſhort fever, is generated. But if, in the firſt caſe, the blood was ſo violently agitated and rarefied, as that, by its great *impetus*, and dilatation of the veſſels, ſome of the red

globules are forced into the *ſerous arteries*, an inflammatory obſtruction would be formed: as we ſee even externally, when the red globules are forced into the veſſels of the *tunica conjunctiva* of the eye, where only *lymph* or *ſerum* ſhould paſs. And if withal the velocity and heat of the blood ſhould be ſo great, as to diſſipate much of its thinneſt part; the remainder would be left groſs and thick, and leſs fit for a free circulation through the *minima vaſcula*; and the very ſerum would be turned into a kind of jelly. For a heat, not much greater than the heat in a common fever, will coagulate the ſerum of the blood; the conſiſtence of which jelly will be in proportion to the violence and duration of the heat. Here then, I ſay, by the mere ſimple accelerated motion of the blood, an inflammatory fever would be produced, of much longer duration, and more dangerous conſequence. If the inflammation ſeizes the lungs, a peripneumony; if the *pleura*, a pleuriſy; if the brain, or its membranes, a phrenzy is generated. And theſe diſorders prove much more ſevere, where, antecedent to this violent motion of the blood, there was a great ſtrength of the fibres, and a great denſity and quantity of blood.

If in the ſecond caſe, the obſtruction of the pores and perſpiration be very conſiderable, the fibres ſtrong and tenſe, the blood much in quantity, and very thick, fevers of the ſame kind enſue.

If in the third caſe, to tenſe fibres and much viſcid denſe blood, a great quantity of wine, or other ſtimulating liquors, be added; both the quantity and velocity of the blood may be ſo greatly encreaſed, as to bring on a dangerous acute fever, which too often follows drunken debauches.

Now as any one of the above cauſes may ſingly produce a fever, on the concurrence of two, or all three, a more violent one, *cæteris paribus*, will ariſe. Thus, from cooling too ſuddenly after vehement exercise, as by expoſing the body to very cold air, and ſtopping the ſweat and perſpiration at once, a very dangerous inflammatory fever will come on, which will be much more violent, if the blood had been heated and encreaſed by a large quantity of any ſpirituous drink immediately before. By the bye, nothing ſo effectually carries off the ill conſequences of a drunken bout, as keeping warm, and lying long in bed, to ſoak it out, as they call it.

Now by conſidering the proximate cauſes of theſe fevers, the method of cure is very obvious, which is by leſſening the velocity, quantity, and acrimony of the blood as ſoon as poſſible. But nothing ſo ſoon abates the too rapid motion, quantity, and heat of the blood, as bleeding; for by this means the red globules of the blood and *vis motrix* are leſſened. By bleeding *ad deliquium*, as Galen, and ſome of the ancient phyſicians, did in inflammatory fevers, the blood's motion almoſt quite ceaſes for a ſhort time.

Bleeding therefore is certainly the firſt intention in the cure of fevers, that ariſe from too great a quantity, and too rapid a motion of the blood; and the longer it is neglected, the more viſcid and acrimonious is the blood rendered, by diſſipating its more thin part, condenſing the red globules, and heating the ſerum to ſuch a degree, as to turn it into a kind of jelly. And by exalting the animal ſalts and oils to a greater and greater degree of acrimony (which is always in proportion to the intenſity and duration of the heat) the whole maſs grows putrid at length, and unfit for animal uſes. Beſides, whatever obſtructions may be formed, either in the extreme branches of the *ſanguine*, or beginings of the *ſerous arteries*, are apt to be more and more radicated by the too violent motion of the blood. So that the neglect of bleeding at the beginning of any acute diſeaſe, is very often never to be compenſated in the ſubſequent *ſtadia* of the fever; when the *impaction* of the obſtructing matter is

is so far advanced, and the thickness and viscidity of the humours so great, as to elude the force of all manner of attenuants and diluents.

In general, the quantity of the blood to be taken away, is to be determined by the strength of the patient and his pulse; by the intenseness of his fever, heat, and the vehemence of his symptoms as to pain, difficulty of breathing, &c. Nay, the very bulk of the person is to be considered also; for certainly, *cæteris paribus*, a big strong man can bear to lose more blood than a small strong man. It is safer, however, to take away too little than too much at a time, as the operation may be so soon and so easily repeated, and as often as may be indicated. If the pain, heat, difficulty of breathing, &c. abate not after bleeding, it shews the necessity of drawing more blood.

And here let me caution the younger practitioner not to be deceived by an oppressed pulse, which is often the consequence of too great a fulness of blood: this is manifest by the vibrations of the artery becoming more free and strong after bleeding in such cases, as daily experience evinces. If he is doubtful in the case, let him apply his finger to the pulse in the other arm, while the patient is bleeding, and if he finds it flag considerably, flutter, or intermit, it is time to desist; if it beats stronger and more open, he may proceed with safety and success. There are, indeed, some very apt to faint on bleeding, from a natural laxity of the fibres, and a want of that due elasticity which should contract the vessels in proportion to the evacuation. These should be bled in a recumbent posture, and the orifice may be frequently stopped for a short time, whereby fainting will be in a great measure prevented. These persons, though they have too lax fibres and vessels, are often plethoric, and of course require bleeding; especially where the load of the humours begins to overbear the power of the heart, which is the common case in an oppressed pulse.

Bleeding not only lessens the quantity and velocity of the blood, but it also makes room for the entrance of diluting liquors into it. Proper dilution is absolutely necessary in all fevers, especially in the ardent and inflammatory; for in these the blood is rendered too thick and viscid, by the dissipation of the thinnest parts of it, and the remaining serum is more and more incrassated, or jellied, by the great and continual heat: so that cooling, thin, diluting liquors, are necessary to supply the continual waste of the lymph and serum, and to keep the whole mass in a due degree of fluxility. These, in general, should be of the acescent, and somewhat also of the saponaceous kind. Of the former, as they are very cooling, and prevent the increase of the alcalescent acrimony of the humours: which would otherwise be continually advancing by the great friction and heat of the blood; for the animal salts are greatly exalted, and made more corrosive, by the feverish heat, and the animal oils are by the same cause turned rancid at length, and highly acrid. The sweetest oils, or butter, by great heat, become vastly caustic. Of the latter, as they not only dissolve the *lentor* better, but also keep the humours more properly mixed, by uniting the salts, sulphurs, and waters, more intimately with the blood. I have often known pure water, drank plentifully in acute fevers, rendered almost as pale and insipid as when drank (which, by the way, is a very dangerous symptom.) Water, as water, will not unite with oily liquors; so that when the serum of the blood hath been jellied by heat, and its oily part exalted and increased, by melting down the fat in the *membrana adiposa*, &c. it is no wonder that plain water neither mixes well with the blood, nor proves an effectual diluent. Hence, therefore, follows the necessity of mixing something saponaceous with it, as sugar, syrup,

jellies, or rob of fruits, as currants, raſberries, cherries, or the like. Juice of lemons, or oranges, by mixing a little ſugar with it, and a proper quantity of water, becomes a very grateful drink, and anſwers the intention of a diluent, both acid and ſaponaceous.

Beſides the uſe of diluents as to the humours of the body, no ſmall advantage will ariſe from them as to the fibres and veſſels, which they tend to relax; eſpecially when they are drank ſomewhat warm. Now too great a tenſion of the fibres, &c. is naturally concomitant to great velocity, heat, and denſity of the blood, which always attend, or rather are the very eſſence of, an inflammatory fever. Every one knows what tepid bathing will do externally; and it may be eaſily ſuppoſed, that ſubtepid diluters internally will have an analogous effect. In all theſe views, the blood is rendered leſs rapid, leſs viſcid, and, in conſequence, leſs hot; which are matters of the higheſt import in the cure of ardent and inflammatory fevers. It may be added, that obſtructed capillaries, and obſtructed perſpiration, are by ſuch means moſt ſafely and effectually remedied, the humours being rendered fluxile, and the *minima vaſcula* permeable. For it is to be noted, that where gentle and general ſweats follow plentiful dilution, with liquors of a cooling relaxing nature, they are commonly critical, and ſoon carry off the fever. I ſay gentle ſweats, for profuſe ones ſhould never be encouraged in the beginning of fevers, as they drain off the thinneſt part of the blood, and leave the remainder too thick, viſcid, and apt to obſtruct. In a particular manner I have often obſerved them of the higheſt ill conſequence in the beginning of pleuriſies, peripneumonies, and the ſmall-pox. And for the ſame reaſon, profuſe diſcharges by ſtool, and thin urine, are hurtful.

But the moſt pernicious method of raiſing ſweats in the beginning of fevers, is by giving hot volatile alexipharmic medicines, ſtoving up the patients in hot air, and ſmothering them almoſt with loads of bed-clothes; for theſe encreaſe the motion and heat of the blood already too violent, and add fewel to the fire: nay, very often they are ſo far from raiſing ſweat, that they prevent it, by hurrying on the blood with too great rapidity to give off any natural and regular ſecretions. It is well known, the higher the fever, the leſs the excretions by ſweat, urine, ſaliva, and the like.

Certainly, if mere encreaſed motion of the blood can bring on a fever, whatever will encreaſe that motion, will continue and augment it, which theſe methods and medicines are known to do.

For theſe reaſons alſo bliſters, which throw an acrid ſalt into the blood, and greatly ſtimulate the fibres, are very improper in the beginning, at leaſt, of all ardent and inflammatory fevers. Yet how often do we ſee, in the common practice, a patient bled largely, then bliſtered, and forthwith put under a courſe of hot alexipharmic boluſſes, cordials, &c.? Which is juſt as rational as to pull out part of too large a fire firſt, and then forthwith endeavour to quench the remainder, by throwing on gunpowder, or ſpirit of wine; or to lay on whip and ſpur to a horſe on the fret, when we would ſtop him, which is really the caſe in bliſtering, where the oſcillatory power of the veſſels is too great, and the motion of the fluids too rapid.

After bleeding, cooling, emollient, laxative clyſters are of very great uſe in the cure of acute fevers, even at the very beginning, to bring off the indurated excrements, which frequently are pent up within the inteſtines, and to give a diſcharge to any bilious acrid matter, which might otherwiſe, in part at leaſt, be reſorbed by the lacteals, &c. into the maſs of blood. Beſides, they are a kind of a warm relaxing fomentation to the parts in the *pelvis*, and lower belly, and both derive from the head and *præcordia*, and promote a diſcharge of urine alſo.

A gentle

A gentle lenient purge, likewiſe, is often of the greateſt ſervice, more effectually to cleanſe the inteſtinal canal of the putrid *ſaburra*. But I would always adviſe to ſuch as act chiefly in the *primæ viæ*, as manna, cream of tartar, ſal catharticus glauberi, rhubarb, tamarinds, and the like. All draſtic purgers are certainly very pernicious, and ſo are all the hot aloetic tinctures, pills, &c. Indeed all profuſe purging is hurtful, as it drains off too much of the lymphatic part of the blood, and thickens the remaining. When nature ſeems to have too great a tendency that way, firſt a doſe of rhubarb, then a little of the *ſpecies e ſcordio*, with a *diacodiate* anodyne, or the like, may be proper.

In very deed, little more ſeems neceſſary in the cure of ardent inflammatory fevers, than proper and well-timed evacuations, and plentiful cooling dilution, with a few nitrous medicines, and the acid ſaponaceous juices of vegetables; for theſe not only tend to keep the blood in a due degree of fluidity, but alſo to prevent its running into a putrid ſtate. In giving theſe freely, we do but follow nature (our beſt guide) that earneſtly demands them; for how averſe ſoever ſhe may be to meat in fevers, ſhe ardently deſires drink; and it is a ſymptom of very bad omen when ſhe doth not, till the fever conſiderably abates, at leaſt.

If, from any of the above cauſes, an inflammatory fever ſhould ſeize a perſon that had an antecedent ſharp ſtate of humours, the fever would prove much the more violent; becauſe the acrimonious ſalts would act as ſo many *ſtimuli*, accelerate the blood's motion, and produce a ſpeedier and greater putreſcence of it. Hence, therefore, the utmoſt neceſſity of dilution in ſuch caſes, to diſſolve and waſh off the ſalts offending (for nothing but a watery menſtruum will diſſolve ſalts) and likewiſe medicines oppoſite in nature to the peccant acrimony. But the diluters alſo ſhould have ſomething of the ſaponaceous in them, for reaſons hinted at above; eſpecially when the oily parts of the blood are greatly encreaſed by the melting down of the fat by the heat of the fever; which often happens to a ſurpriſing degree, and very ſuddenly, in ſome very fat perſons, and which continually grows more and more acrid and rancid, and requires ſome ſaponaceous medium to unite it with the aqueous parts, otherwiſe it produces the moſt fatal obſtructions, and higheſt degree of acrimony.

As to the manner of dilution, I think the ſick ſhould be allowed to drink as freely, and as often as they pleaſe, but not forced to load their ſtomachs with too large draughts at a time, which create a nauſea, indigeſtion, and wind, with great anxiety and reſtleſſneſs, and, in the event, vomiting or purging.

The practice of Aſclepiades was in nothing more monſtrous, than in denying all manner of drink to the ſick for the firſt three days of the fever. And he is very far from keeping up to the rule he lays down, of curing *tuto, celeriter, & jucunde*; when, as Celſus ſays, *convellebat vires ægri luce, vigilia, ſiti ingenti, ſic ut ne os quidem primis diebus cluiſineret. Lib.* iii. *Cap.* 4. I am ſure that he did not learn this from the great Hippocrates, nor from reaſon, nature, or experience. But this man, from a declaimer, turned phyſician, and ſet himſelf up to oppoſe all the phyſicians of his time; and the novelty of the thing bore him out, as it frequently doth the quacks of the preſent time, and ever will, whilſt the majority of the world are fools!

I think ſmaller draughts, frequently given, the beſt way of dilution; for, of the ſame quantity of liquor drank in a certain time, more is like to be imbibed by the abſorbing veſſels, planted thick from the mouth to the ſtomach, by frequently ſipping it down, than if ſwallowed at once in a full draught, becauſe it is in this way more frequently, and much longer, applied

applied to theſe veſſels. Beſides, when ſwallowed, the action of the ſtomach and inteſtines is more effectual in ſqueezing it into the lacteals and meſaraic veſſels, when in ſmall quantities, than when they are, as it were, deluged with the liquor.

Moreover, dilution and relaxation may be farther carried on by emollient fomentations, tepid baths, cooling lenient clyſters, &c. Bathing of the arms and hands, legs and feet, and alſo of the hypochondria, is of very great ſervice in fevers of the inflammatory kind (the good effects of which I once experienced on myſelf) but the *fotus* ſhould not be much hotter than the preſent temper of the body, which may eaſily be adjuſted by a thermometer.

This method not only ſupplies the blood with moiſture through the abſorbing veſſels, but alſo greatly tends to open the obſtructed, and produce a general relaxation of, fibres, now commonly too rigid. In very dry *ſtrigoſe* conſtitutions, it cannot but be of the greateſt ſervice. The ſkins and bladders of animals, when very dry, will tranſmit nothing; but, when moiſtened, water, &c. will paſs through their pores. And the drinking frequently of tepid, emollient liquors, is at the ſame time a kind of internal relaxing *fotus* to the *primæ viæ*, *præcordia*, *&c.* which is of no ſmall conſequence, eſpecially in inflammations of the lungs, pleura, &c. I ſhall only farther add on this head, that this was the practice of the ancients, who gave little elſe in fevers beſides thin watery diluents, *ptiſan* or barley-water, *hydromel*, *oxymel*, *&c.* and uſed very frequent fomentations and clyſters.

As encreaſed velocity of the circulating humours will of itſelf bring on a fever, all cauſes that encreaſe the blood's motion, will encreaſe the fever; the ſtrength of the fever, therefore, will be in a compound ratio of the moving powers, viz. ſtrong tenſe fibres, much denſe rich blood, and many acrid ſalts in it, which ſtimulate the heart and arteries to more frequent and vehement contractions. The large uſe of very ſalt and ſpiced meats will raiſe a feveriſh heat, even in the moſt healthy.

On the contrary, the weaker and more lax the fibres, the thinner and poorer the blood, the leſs vehement the fever. This is the caſe in what we call ſlow, or nervous fevers; which are generated by low, watery, unwholeſome diet, crude waſhy fruit, rainy, warm, and wet ſeaſons, long and great anxiety of mind, dejection of ſpirits, &c. Here, indeed, a kind of lentor, or ropineſs of the humours, is alſo generated, and is a proximate cauſe of the diſeaſe; but it is not of the inflammatory kind (or what the ancients called *phlegma phlegmonodes*, which is particularly inherent in the red globular parts of the blood) for it ſubſiſts chiefly in the ſerous and lymphatic veſſels, which hence become obſtructed; and from ſuch a poor ropy ſtate of the blood, few animal ſpirits are generated, and they are irregularly ſecreted and diſtributed; hence the nervous ſymptoms, which denominate the fever. And yet as there are obſtructions formed, the ſtagnant lymph grows more and more acrimonious, which brings on more or leſs of a fever, known by the quickneſs of the pulſe, irregular heats, chills, &c. All the humours of the body grow more and more corroſive, the longer they ſtagnate; even hydropic ſwellings of the legs, though at firſt as cold as marble, become at laſt highly inflamed, the humours at length ſo very acrid as to produce an eryſipelas, veſications, ulcers, &c. as is often obſerved at the cloſe of dropſies.

Now as the ſeat of theſe fevers ſeems chiefly in the *ultima vaſcula*, or the ſerous and lymphatic arteries, and perhaps in the very origin of the nerves; and as they are always attended with too great a *flaccidity* and *torpor* of the nerves and fibres, and the obſtructions lie more remote from the great road of the circulating blood; it is no wonder they are not ſo eaſily affected by medicines, and ſo readily removed,

removed, as if their cauſe lay more particularly in the ſanguineous veſſels. Beſides, it muſt be conſidered that the nerves and fibres are not preſently reſtored to their due tone. Hence we in fact ſee that theſe kind of fevers are both longer in forming, and much longer in being carried off, than a common inflammatory fever.

Theſe two ſorts of fevers ſeem to have in a great meaſure oppoſite cauſes, and, in conſequence, very different ſymptoms and effects. Let us conſider ſome intermediate febrile ſtate, which will elucidate this whole affair. Turn we, therefore, our thoughts on an intermitting fever.

CHAP. II.

Of intermitting FEVERS.

THE common procatarctic cauſes of agues, are a moiſt, foggy atmoſphere, exhaling from a ſwampy, moraſs ſoil, or a continuance of cold, rainy, thick weather; hence in low, fenny countries, agues are endemic, and in ſuch ſeaſons epidemic. By ſuch conſtitutions of the air, the fibres are too much relaxed, and regular perſpiration obſtructed, which ſoon create a *lentor* of the blood, and that obſtructions and ſome degree of ſtagnation in the ultimate branches of the *ſanguineous arteries*; as is manifeſt from the coldneſs, paleneſs, and lividity of the fingers, nails, lips, &c. which immediately precede and begin the rigor of an aguiſh paroxyſm. The blood hence recoils upon the heart, and all the powers of nature rouſe up to remove the obſtructions, which are ſoon carried off in a hot fit, in ſweats, turbid urine, &c. We ſee a kind of aguiſh paroxyſm brought on by bathing in very cold water; paleneſs, coldneſs, ſhivering, a ſtoppage of the blood in the cutaneous arteries, and repulſion towards the heart; you are no ſooner out of the bath, than your heart, arteries, &c. overcome the reſiſtance from the precedent conſtriction, and bring on an univerſal glow of heat. But if the perſon bathed be weak, the water very cold, and the continuance in it long, he may die in the cold bath; as a weakly patient may in the cold fit (which commonly happens when the diſeaſe proves mortal) the heart not being able to overcome the reſiſtance.

If the fibres are pretty ſtrong, the lentor and obſtructions not very great, the paroxyſm eaſily wears off by this effort of nature. But if the lentor and obſtructions are great, the fibres ſtrong and more tenſe, the fever runs very high in the hot fit, and is readily changed, by wrong management, into an acute continual. Indeed it is obſervable that ſome epidemic agues, in ſome conſtitutions, at firſt put on the appearance of ardent fevers, and then break into quotidians or tertians; and it is not uncommon for a quotidian or tertian, to be changed, by a very hot regimen at the beginning, (as volatile ſpirits, brandy, pepper, ſnake-root, &c. which are too often quacked upon the poor patient) into an inflammatory fever, with phrenſy, pleuriſy, or peripneumony. So that the conſtitution of the ſolids and fluids, in ſome kinds of agues, ſeems not greatly different from that of inflammatory fevers. I well remember, that the catarrhal fever, which ſpread through all Europe under the name of the influenza, in the ſpring of 1743, frequently became pleuritic, or peripneumonic; and as frequently, after two or three days, ran into a quotidian, or tertian: the difference of the conſtitutions of the patients, &c. thus altering the face and nature of the diſeaſe.

Sometimes quotidian, ſemi-tertian, and tertian fevers, are very rife and cotemporary with epidemic pleuriſies and peripneumonies; as particularly in 1744.* The cold ſeaſon in ſome conſtitutions bracing up the fibres ſo

* Vid. Obſ. noſtr. de Aere & Morb. Epidem. Vol. II. Martio, Aprili, Maio, 1744.

high,

high, and condenſing the blood into ſuch a degree of viſcoſity, as to bring on theſe inflammatory fevers on taking cold, or other accidents; whilſt, on perſons of a more lax ſyſtem of nerves and fibres, and more weak, watery humours, it only raiſed the powers of the oſcillatory veſſels ſo high, and warmed the blood ſo much, as to carry off the ill conſequences of deficient perſpiration, and ropy heavy juices, by repeated fits of a regular intermittent. Thus we often ſee perſons of low ſpirits, and a leucophlegmatic habit of body, raiſed into a feveriſh diſpoſition by the uſe of warm invigorating medicines, chalybeates, &c. And if this turn of nature be well managed, it generally ends in their perfect recovery. If you can change a ſlow nervous fever into a regular intermittent, you ſoon cure your patient.

But farther, I have more than once known pleuriſies, peripneumonies, and inflammatory rheumatiſms, reign very much in a cold, dry ſpring, and a great number of intermittents ſucceed them in the following warmer months; the heat abating the rigidity of the fibres, and reſolving, in ſome meaſure, the viſcoſity and denſity of the blood; whereas had the ſolids continued more tenſe, and the blood more denſe and viſcid, inflammatory fevers would have been the conſequence on taking cold, or the like, which now only produced an aguiſh diſorder.

Regular vernal intermittents have many times ſalutary effects, by breaking the lentor and morbid coheſions of the blood; as a ſtorm purges a thick foggy atmoſphere. The invigorating power of the advancing ſpring, and the encreaſing genial warmth and dryneſs of the air, by rarefying and attenuating the heavy, ſizy humours, and opening the pores, are the reaſons why vernal agues go ſo eaſily off at the approach of ſummer. And probably the enlivening, attenuating influences of the growing ſpring, actuating the powers of nature to throw off the heavy, ropy *colluvies*, that in ſome may be conſiderably amaſſed during a cold moiſt winter, may be one reaſon, at leaſt, of the frequency of agues in the ſpring ſeaſon. It is certain all nature, at that time of the year, undergoes a kind of orgaſm; even the torpid vegetables regain freſh life, and their concreted juices reſume new motion.

It appears from experiments, * that the blood in quotidians is more denſe and tenacious than in tertians, in tertians than in quartans; ſo that in quotidians, *cæteris paribus*, it comes neareſt an inflammatory ſtate: and it is commonly noted, that if the fever, from a regular tertian, runs into a ſemitertian, or quotidian, or greatly anticipates the time of the regular paroxyſm; a remittent, or continual fever, is forthwith the conſequence; and this is too often effected by a very hot regimen, or a too haſty uſe of the bark. Indeed we very frequently ſee that quotidians, and double tertians (which, by the bye, are oftentimes the ſame thing) will not bear the bark at the beginning; till the ſaline draughts, proper diluting attenuants, and, in ſome caſes, bleeding, purging, and vomiting, have been made uſe of. In truth, I never think it prudent, in ſuch kind of intermittents, to give the bark, in any form, till after four or five paroxyſms at leaſt, and after having drawn more or leſs blood from perſons pretty much inclined to the plethoric; and this method is more eſpecially to be obſerved in vernal agues. I muſt farther note, that as nothing is more effectual in curing agues than well-timed vomits, and thoſe too repeated (as nature ſhews us, by making this one of her conſtant efforts in the paroxyſm) ſo previous bleeding makes them much more ſafe in full ſanguine habits, eſpecially when given in the paroxyſm, which is frequently practiſed with great ſucceſs. Nor is this a new practice, for Celſus adviſes, *cum primum aliquis inhor-*

* See Dr. Langriſh's Modern Theory, &c. Chap. V.

ruit,

ruit, & ex horrore incaluit, dare ei oportet potui tepidam aquam ſubſalſam, & vomere eum cogere. Lib. iii. Cap. 12.

We ſee, then, that ſome kinds of agues border too near on the inflammatory ſtate, and require a cool regimen, proper dilution, and many times bleeding to ſome degree, as well as other evacuations. I have known it neceſſary to join nitre to the bark during the whole proceſs of cure, and even ſometimes to ſuſpend its uſe for a day or two, and give ſalt of wormwood and juice of lemons, with infuſion of chamomile-flowers and ſevil-orange rind, or the like.—If an intermittent runs into an inflammatory continual fever, bleeding and a gentle cool purge, will ſoon reduce it to its type.

But as ſome intermittents are apt to run up into an inflammatory fever, far the greater number, eſpecially in the autumnal ſeaſon, are diſpoſed to ſink into low irregular remittents, putrid or ſlow nervous fevers. It is not a very rare thing to find a quotidian fall into a tertian, thence into a quartan, and at laſt end in a dropſy; and this particularly in ſome ſeaſons and places. This evidently ſhews that the fibres grow more and more enervate, and the blood very vapid and watery. Even vernal tertians, which oftentimes cure themſelves in a favourable ſeaſon, prove many times exceeding obſtinate in wet rainy ſummers, and the patients are exceeding apt to relapſe on the ſlighteſt occaſions: this was particularly obſervable in the wet cold ſummers of 1734 and 1735.* In ſuch caſes I have known the daily uſe of the fleſh-bruſh, and frequent cold bathing, of very great uſe in preventing relapſes. Perhaps it is the winter-cold, bracing up the fibres, that commonly puts a ſtop to agues in that ſeaſon; for it hath been noted, that they are often very ſtubborn in a warm moiſt winter.

* Vid. Obſ. noſtr. de Aere & Morbis Epidemic. Vol. I.

Improper evacuations by bleeding and purging, an unwholeſome, groſs, glutinous diet, vapid ropy drinks, as ſtagnant heavy water, foul beer, and the like, render theſe agues very anomalous, obſtinate, and dangerous, and make them frequently degenerate into malignant, putrid, or ſlow nervous fevers; otherwiſe they end in dropſies, jaundice, or univerſal obſtructions of the viſcera of the abdomen, and frequently in diſeaſes of the *genus nervoſum*.—In a word, whatever takes down the ſpring of the fibres too much, and weakens the craſis of the blood, will be productive of theſe miſchiefs; and this eſpecially, when due perſpiration is frequently interrupted by cold damp air, want of due exerciſe, groſs heavy ſlimy diet, as fiſh, lettuce, cucumbers, and other watery inſipid fruits, which are known to ſuppreſs the perſpiration greatly.

Theſe obſervations then, evidently ſhew the neceſſity of uſing a warm, invigorating, attenuating regimen in the cure of agues, which affect perſons of a lax habit of body, and a poor thin blood; in a particular manner when a wet foggy atmoſphere prevails. Under ſuch circumſtances, the cortex of Peru, however good and carefully choſen, frequently proves ineffectual, unleſs aſſiſted with proper alexipharmics, as rad. ſerpentar. Virgin.—Contrayerv. myrrh, camphor, &c.—After four or five paroxyſms, warm chalybeates may be added with very great ſucceſs. But never be too haſty in giving the bark, or chalybeates, where the patient hath a yellow caſt of the countenance, a tenſe abdomen, and a very coſtive habit of body.—In which caſe, mercurial ſaponaceous deobſtruents with rhubarb, aloetics, regenerate or ſoluble tartar, ſhould be premiſed; nay, they may in ſome caſes be very conveniently joined with the bark.

From the whole then of what has been ſaid on this head, it appears that a regular tertian is a medium between an inflammatory and a ſlow nervous

fever; and that, on the one hand, the conſtitution of the ſolids and fluids may be ſo highly wrought up as to fire the blood into a continual inflammatory; and that, on the other, it may be ſo far depreſſed as to bring on the low influent, or ſlow nervous fever.—And hence the cauſe and cure of ſuch fevers reſpectively ſeem to be obvious.

Now as every kind of fever is a ſtruggle of nature to relieve herſelf from ſomething oppreſſive, we ſhould always favour her endeavours by the moſt proper means that reaſon and experience ſuggeſt. But we ſhould be very cautious, at the beginning eſpecially, how we proceed in ſpurring on, or bridling her efforts, till we have well conſidered the nature, quantity, and quality of the diſeaſe, and conſtitution of the patient. In order to this, it will be highly neceſſary to make a diligent examination into theſe two things; 1ſt, the ſtate of the ſolids; and 2dly, that of the fluids.

CHAP. III.

Of the State of the Solids.

PROBABLY all that we call firmneſs of body, and ſtrength of conſtitution, is originally owing to the *rudimental ſtamina* of our bodies; and on the ſtrong or weak texture of them, in a great meaſure, depends our future proſperous, or adverſe health. There was, indeed, a determined conſtitution and ſtrength of fibres deſigned by nature, and any deviation from it may be called a diſeaſe, which may ariſe from weakly parents, errors in diet, exerciſe, and many other things: and this deviation I would have heedfully attended to in practice.

A due proportion of tenſity, conſiſtent with a proper degree of flexibility, conſtitutes the happy medium in which perfect health conſiſts. Too great a degree of rapidity tends to waſte the nutricious juices too ſuddenly, and ends in a *maraſmus*; as too great a laxity of the veſſels makes them liable to be overloaded, and brings on a *leucophlegmatia*, or dropſy. The former over-digeſts the animal fluids, the latter doth not ſufficiently aſſimilate what is taken in by way of nutriment.

A very ſtrong elaſtic ſet of veſſels act with great force on the contained fluids, and produce much friction, and of courſe great heat, and withal a conſtant and large diſſipation of the more ſubtile and aqueous parts, which render the blood-globules, in proportion, more numerous, more denſe and compact, and the humours in general more viſcid, as is evident by the ſtate of the blood always obſervable in ſtrong laborious people, which is ever of this kind. Where this conſiderably overbears the ſtandard of nature, it becomes conſtitutional diſeaſe, and cauſes a perpetual fever, as it were, and at long-run, ends in atrophy, and a complete maraſmus, if ſome violent inflammatory diſeaſe doth not ſnap them off much ſooner; and to which they are exceedingly liable, and from which, on account of the denſe viſcous ſtate of the blood, the rigidity and contraction, or ſtricture of the veſſels, they eſcape with much greater difficulty than others of ſofter fibres, and a more weak, but fluxile blood. There is no advantage without an allay; the roſe hath its prickles; theſe diſadvantages flow even from the higheſt health and vigour—human frailty!

In ſuch conſtitutions, the uſe of emollient farinaceous drinks and diet is highly proper, and frequent ſubtepid bathing, eſpecially in very dry and very cold weather. Where perſons of ſuch a frame fall into inflammatory fevers, as pleuriſies, peripneumonies, or the like, I would always adviſe great plenty of tepid, watery, emollient diluents to be perpetually ſipped; by which means the warm vapor relaxes the parts and

paſſages

paſſages of the lungs, and promotes a freer flow to the blood through them, and a more eaſy and copious expectoration; at the ſame time that the blood is thus moſt effectually diluted. Withal, fomentations, emollient and diluting, moderately warm (not too hot) ſhould be applied to the feet, legs, hands, arms, hypochondria and breaſts; which have oftentimes a ſurpriſing good effect, and are of infinitely greater advantage and efficacy than ſome of the indigeſtible traſh of the ſhops, upon which ſo much ſtreſs was formerly laid.

I have known the prepoſterous uſe of the cold bath, on a ſtrigoſe and a too rigid habit of body, of exceeding great detriment; for that even yet augments the corrugation and tenſity. You may generally obſerve, that moſt who uſe the cold bath grow ſomewhat thinner, though more vigorous and active.—Some years ſince I was conſulted by a gentleman of a thin ſcraggy habit of body, but of much natural vivacity of ſpirit, and one that conſtantly uſed much exerciſe, and had long accuſtomed himſelf to cold-bathing in the ſea very frequently, even ſometimes in very cold weather; he waſted daily in his fleſh, and at length became weak, and very low-ſpirited. I judged that by this method the fibrous ſyſtem was over-braced, and that too much of the finer lymph, and even of the *liquidum nervoſum*, was forced off by the pores, &c. For he all this while uſed a ſufficient quantity of food, and had no extraordinary ſenſible evacuation.—I put him on a ſoft, relaxing, nouriſhing diet, forbad him the uſe of the cold-bath; and at laſt ſent him to uſe the waters at Bath. The event was, that he ſoon recovered much better health, ſpirits, and fleſh. Nothing, on the contrary, more effectually ſtrengthens weak, lax fibres, than cold bathing. By this, weak, flabby, rickety children are ſoon invigorated, as it were, to a miracle. Indeed, in the times of Popery and ignorance, when the prieſts were knaves, and the people fools, many a well was ſanctified for nothing but pure cold water, the virtues of which, the miracle-mongers wholly attributed to a ſaint of their own making.

The doctrine of the ancient Methodiſts, with reſpect to the *ſtrictum* and *laxum*, if rationally purſued, might be of great ſervice in the practice of phyſic; though they indeed frequently confounded them both in theory and practice. But Boerhaave hath made many rational and valuable obſervations on the diſeaſes of too tenſe, and too lax fibres, which are of exceeding great uſe in practice. There ſeems to be another ſpecies of fibres not taken notice of, which may be called the tender, or delicate conſtitution of the ſolids, which is moſt readily and highly affected with pleaſure or pain; but in which the *ſtamina* are ſo ſlender, that a very ſlight accident breaks them. This is often obſerved in thin, fair perſons, of a very delicate frame, but exceedingly lively; in whom the ſpirit is willing, though the fleſh is weak. Such very often fall into an *hæmoptoe*, or other *hæmorrhages*, colliquations, and a pulmonary *phthiſis*, and thence become what is peculiarly called conſumptive.

We have taken a ſhort view of the ill effects of a too great ſtricture, or tenſion of the ſolids; let us next curſorily ſee what diſadvantages ariſe from their too great laxity.

Weak veſſels do not ſufficiently act on the contained fluids, they do not ſufficiently comminute, round off, and aſſimilate the chyolus particles. Indeed the chyle itſelf, where the organs of digeſtion are weak, is never well prepared. Where the veſſels have a due tone, and act with vigor on the nutritious juices which they receive from the ſtomach, &c. no chylous irregularly-formed particles are to be found in the blood after a few hours from the repaſt; but in weakly leucophlegmatic people, they

are never, or not till a very long time, reduced into blood-globules, and a proper serum. Besides, in these lax habits, the blood itself is not sufficiently actuated, and driven on with force enough to keep a due vital warmth, nor to work up the salts and sulphurs, or oils, to such a just degree of tenuity, as may fit them to serve the purposes of animal nature; nor are the red globules of the blood (the great principle of life and heat) duly compacted, and moulded into a sufficient roundness and firmness. Hence irregular concretions in the vessels, a lentor, a ropiness in the serum and lymph, few animal spirits, and all the secretions weak and imperfect. From the whole follow cachexy, leucophlegmatic and dropsical disorders, irregular intermittent and remittent fevers, or those of the slow nervous kind, the humours running into a kind of putrescence for want of due motion and a circulation, and stagnating in the *ultima vascula*, on account of the obstructions continually forming from the want of a due action of the vessels, which do not sufficiently agitate, comminute, and protrude, their contents.

Now all humours of the body that stagnate, soon begin to corrupt and grow acrimonious, and that too many times to such a degree as to bring on fevers of the worst kind; for though the circulation may be very languid, from the weakness of the contracting propelling vessels, yet it is sufficient to cause some degree of feverish heat from the stimulating acrimony, and at last a general putrefaction; witness the chlorotic fevers, which very often prove of exceeding dangerous consequence. Cold hydropic tumors of the legs, frequently end in a kind of erysipelas and gangrene.

A due consideration, therefore, of the state of the solids, is a matter of high importance to physicians, not only in chronic, but also in acute diseases; for they are generally the primary efficient causes of the particular states of the fluids. For instance, we may naturally conclude that a man of a robust constitution, strong, rigid fibres, and used to much exercise, hath a dense rich blood, inclining to such a degree of viscidity, as will bring on inflammations on the accession of a feverish disorder; and of course, that timely bleeding is the proper way to prevent it. On the contrary, that a weak, lax, flabby constitution, hath a poor, thin, watery blood, and cannot bear bleeding well, nor large evacuations.

A diligent enquiry of this nature is of vast concern in the beginning of acute diseases, particularly in the small-pox, and other eruptive fevers, so as to determine one to bleed, or not to bleed.

For instance, where a strong man, with a strong pulse, is seized with violent symptoms of the small-pox, it would be unpardonable not to bleed before the eruption; for we cannot but suppose the inflammatory fever must run high in such a constitution; but it would be great rashness to bleed persons of a weak, lax habit, unless some very urgent symptom demanded it.—Yet how little is this regarded in the vulgar practice! For some bleed and vomit, of course, upon the least appearance of an attack of the small-pox; whereas others are so fearful of weakening their patients, that they suffer them to die of the inflammation, even abstracted from the virulence of the disease.

If any physician hath a previous knowledge of the patient, he can be at no great loss in judging of his constitution; and therefore Celsus rightly pronounces, *cum par scientia sit, utiliorem tamen medicum esse amicum quam extraneum.* * When that is not the case, hard firm flesh, dry skin, great heat, thirst, and colour, hot breath, and violent pains, with a strong, tense, quick pulse, are pretty evident symptoms of strong, very elastic fibres, and of an ardent or in-

* Præfat. sub. finem.

flammatory

flammatory fever. A weak, quick, ſoft pulſe, no great heat or colour, little thirſt, pale urine, a ſoft fleſh and ſkin, clammy, partial, irregular, cold, or profuſe ſweats, with heavineſs and anxiety, rather than ſevere pains, and a moiſt, though perhaps a white-coated, or foul tongue, denote the contrary. But in truth, theſe things are rather to be learned from experience, than taught by preeept; therefore I ſhall ſay no more on this head.

CHAP. IV.

Of the State of the Fluids.

THE ſtate of the fluids ſhould next be conſidered, which, in a great meaſure, depends, as we ſaid before, on the condition of the ſolids.

There is then, 1ſt, a ſtate of the blood in which the humors are too denſe and viſcous, in which the blood-globules are in too great quantity, and too cloſely eompacted or condenſed, in which the ſerous globules are ſo likewiſe; in a word, in which the whole maſs of the fluids is too glutinous, and too apt to eoncrete into a ſolid form.—Perſons of vigorous eonſtitutions, of ſtrong fibres, that uſe much exereiſe, and a full diet, are peeuliarly ſubject to this ſtate.—Now when the blood-globules are very denſe, and in great quantity, and the veſſels very ſtrong and elaſtic, a great momentum of motion muſt be produced in the eirculating fluids, and of courſe great friction, and much heat, which both diſſipates the more fluid parts of the blood, and encreaſes its viſeoſity; ſo that the reſidue becomes very glutinous, and leſs fit to paſs the extreme branehes of the eapillary arteries; and henee obſtructions, hence inflammations.

Beſides, great heat tends to coagulate the ſerum; a heat, not much above the common heat in an ardent fever, will turn the ſerum of the blood into a jelly, as is found by experience. Hence, when blood is drawn off in high inflammatory fevers, it appears covered over with a thick glutinous coat, or buff, as it is called. I have ſeen it in ſome ſevere pleuritic and rheumatie diſorders near an inch thick. That it is thus formed by the febrile heat, is manifeſt; for at the firſt bleeding, at the very beginning of the fever, it ſhall often appear pretty florid, though very denſe; whereas on the ſecond, third, or fourth bleeding, when the heat hath had a long continuanee, and been encreaſed to a greater degree, it becomes exceeding ſizy, and covered over with a very thick buff: and indeed, in general, the ſtronger the fever, and the perſon from whom it is drawn, ſo much the more thick and tenaeious. And this in a particular manner happens in fevers attended with violent pain, as pleuriſies, rheumatiſms, &c. For the pain being a ſtimulus, which greatly encreaſes the motion, friction, and heat, it ineraſſates the ſerum in proportion to its vehemence. And the inflammatory ſize alſo ſticking in the extremely ſmall veſſels of the membranes, &c. over-diſtends them, and produces farther inflammations and pains; ſo that they mutually encreaſe one the other. Though this denſe ſtate of blood, in health, is attended with great bodily ſtrength, a ſtrong firm pulſe, and mueh natural heat, yet, on the aceeſs of a fever, it produces very violent ſymptoms, quickly fatal, unleſs prevented by timely bleeding, cooling, diluting, emollient drinks and medieines.

But farther, an over-fulneſs of even good blood, is a degree of diſeaſe, and therefore Hippocrates * pronounces the athletic Εὐεξία dangerous, and Celſus elegantly ſays from him, that perſons of ſuch a habit *ſuſpecta habere bona ſua debent*.† Such a plethora not only over-diſtends the ſanguineous arteries, but alſo too mueh

* Aphoriſm 3. Sect. i. † Lib. II. cap. 2.

dilates

the orifices of the ſerous and lymphatic arteries; by which, on the ſlighteſt occaſions, the blood-globules are forced into them, and form obſtructions *errore loci*, as it is called: whence inflammations and ruptures of the veſſels frequently follow, particularly in the brain and lungs.—Here nothing will relieve equal. to blood-letting, which (if not too immoderate) is ſo far from weakening, that it ſtrengthens the patient, by reſtoring a due *æquilibrium* between the ſolids and fluids: the keeping up of which, however, is a matter of great nicety in ſome caſes and conſtitutions; though, in general, it admits of a conſiderable latitude, even conſiſtent with health. Some delicate, florid, plethoric people ſuffer immediately from a very ſmall degree of over or under living; and I have known ſome men of this conſtitution, that have had as regular a menſtrual diſcharge, by ſome kind of hæmorrhage, as the more delicate ſex.—The beſt bred and moſt accurately fed cock, will not hold his athletic ſtate above twenty-four hours,* and dwindles from it ſurpriſingly ſoon—*Quia non ultra progredi poteſt, retro, quaſi ruinâ quâdam, revolvitur*, as Celſus† ſays of a plethoric man.

There is, 2dly, a conſtitution or craſis of the blood, quite oppoſite to the former, in which there are too few blood-globules, and thoſe too looſely compacted; and in which the ſerum is too watery and vapid, and ſometimes of a ropy ſlimy nature. From this weak pituitous blood all the ſecretions are imperfect, and not ſufficiently participant of an animal nature; the bile inert, the animal ſpirits flat and deficient, the ſaliva a mere inſipid mucus, and ſo on.—Hence univerſal indigeſtion, weakneſs, coldneſs, paleneſs, cacochymy, dropſy, &c. In a word, ſuch a ſlow motion of the humours, that at length, for want of a due circulation, they run into morbid concretions, obſtructing the veſſels in ſome places, and ſtagnating in others, where they fall into ſpontaneous corruption, productive at laſt of ſuch a degree of acrimony, as to end frequently in fevers of a very malign nature, and dangerous conſequence: and this the more ſo, as the veſſels, in ſuch a miſerable conſtitution, have greatly loſt their elaſticity, and the blood its moſt vital principles: ſo that, in the event, either the ſlimy lentor ſtagnates up the heart, or the corrupted humours corrode and deſtroy the moſt delicate and eſſential parts of the animal fabric, particularly the compages of the brain, where the humours naturally move exceeding ſlow, and the veſſels are of the moſt tender ſtructure. Thus as too rapid a circulation often burſts the minute veſſels, ſo the humours moving too ſlowly, ſtagnate, corrupt, and at length corrode them.

Theſe two different ſtates of the fluids may not improperly be called conſtitutional, as they naturally follow the reſpective ſtate of the ſolids; ſo as that a ſtrong rich blood always attends a ſtrong elaſtic ſet of veſſels, and a weak watery blood a relaxed habit of body: where either conſiderably deviates from the ſtandard of nature, it becomes a real diſorder, and is to be duly regarded in whatever concurring diſeaſe happens.*

* Ardent and inflammatory fevers are naturally the effect of over-elaſtic and rigid fibres, and a very denſe viſcid blood; as the low and ſlow nervous kinds are of a too lax ſtate of veſſels, and a weak and thin blood. But there are ſeveral diſeaſes, eſpecially thoſe ariſing from contagion, which are common to both.

* Lib. II. Cap. 2.

† See Dr. Bryan Robinſon on the food and diſcharges of human bodies, p. 289.

CHAP. V.

Of the diſſolved and putrid State of the Blood.

BUT, beſides theſe, there is moreover a third ſtate of the blood, of more dangerous conſequence than either; I mean a ſtate of it, that more

imme-

immediately tends to diſſolution and putrefaction: this is evidently the caſe in ſome ſcorbutics, as they are called, where, without any conſiderable, antecedent, ſenſible diſorder (more than perhaps a kind of laſſitude and langour) perſons have, on a ſudden, an eruption of violet-coloured, livid, or even black and blue ſpots all over their body, and forthwith fall into profuſe, and ſometimes dangerous, and even fatal hæmorrhages, when they have ſcaree thought themſelves, or been thought by others, to be under any manner of diſorder. Abundance of inſtanees of this kind happen: I have ſeen a great many, both in children and grown perſons, and frequently foretold the enſuing hæmorrhage.

Where women have ſuch eruptions, or black or blue vibices, or large irregular ſpots like bruiſes, they are always ſubject to a vaſt overflow of the catamenia, if not to other profuſe hæmorrhages. Nay, when perſons of either ſex are affected with theſe appearances, they are apt to bleed exceſſively from the ſlighteſt wound, and very often without any, from the gums, noſe, guts, or urinary paſſages.

The blood of ſuch perſons, when it hath been drawn off, in order to prevent the farther progreſs of the hæmorrhage, as was imagined (which, by the way, is very improper, unleſs there are very manifeſt ſigns of a plethora) always appears a mere gore, as it were, not ſeparating into craſſamentum and ſerum, as uſual, but remaining in an uniform, half-coagulated maſs, generally of a livid, or darker colour than uſual, though ſometimes it continues long very florid; but it always putrifies very ſoon. It is even obſervable, that the breath of ſuch people moſt commonly ſtinks much before the eruption, and their urine frequently ſmells very rank; evident ſigns of the beginning putridity of the humours; which, growing more and more acrimonious, at length erode the veſſels. For theſe kinds of hæmorrhages often happen to perſons that have not the leaſt ſign of a plethora, no full, no very quick pulſe, little or nothing of a feveriſh habit, nor under the uſe of violent exerciſe; ſo that they happen from the corroſion, not the rupture, of the veſſels broke open by too great a quantity and velocity of the blood. In ſome very tender and delicate conſtitutions indeed, a very ſmall effort will ſometimes burſt their fine thin veſſels, as is obſervable in ſome, who are ſubject to an hæmoptoe, or bleeding at the noſe from every ſmall accident; but theſe hæmorrhages are ſeldom attended, or preceded, with livid, or violet-coloured eruptions, &c. In theſe caſes, drawing of ſmall quantities of blood is proper, to abate the too great impetus on the tender veſſels, even though there may be no apparent plethora.

Though I am perſuaded the above-mentioned hæmorrhages moſt commonly ariſe from an acrimonious ſtate of the humours, which breaks the craſis of the blood, and corrodes the extremities of the capillary arteries; yet they ſometimes alſo happen from a too looſe contexture of the blood-globules, not ſufficiently compacted by the action of the heart, arteries, &c. for want of which they become oblate ſpheroids, or irregularly formed moleculæ, inſtead of regular ſpheres, and of courſe of a greater diameter, and a leſs firm compages than natural. But it appears from microſcopical obſervations (eſpecially thoſe made with the ſolar microſcope) that the blood-globules, in paſſing through the minuteſt ramifications of the ſanguineous arteries, change their globular, into a very oblong figure frequently, in order to paſs through theſe exceeding ſmall veſſels. And it is eaſy to conceive how theſe looſely-cohering globules may be broken in their paſſage, as the enlarged bulk makes their tranſit more difficult. Now as theſe broken parts are of much leſſer diameter than the original globules, they may readily enter, and even paſs through ſome of the excretory ducts, and tranſude *per diapedeſin*, as the

ancients

ancients called it. That this is so in fact, seems to appear from the bloody urine, stools, and other hæmorrhages, which sometimes happen without any manner of pain, violence of motion, or the least suspicion of the rupture of any vessels. Nay, I have more than once or twice seen in malignant fevers, and that too where the motion of the blood was far from being very rapid, a kind of * bloody sweat from the axillæ, tinging the linen almost of a Burgundy-wine colour. And it is observable, that when this sort of hæmorrhages happens from the nose, the matter is a thin bloody ichor, not concreting, as blood commonly doth from the nose of persons in health, or in an inflammatory fever, which is generally very thick, shining and florid. Some chlorotic girls are vastly apt to bleed from the nose, and yet their blood doth but just colour a linen cloth. The petechiæ, vibices, or livid stigmata, that very often attend these hæmorrhages, shew that the blood-globules are dissolved, or broken down, and enter into the serous arteries, *vasa exhalantia*, &c. where sticking fast they form these appearances. And I have particularly noted, in some putrid, malignant fevers, a kind of yellow, or rather dun petechiæ,† vastly numerous, and of not less fatal omen than the others. Here the blood-globules were broken into such small particles, as to have quite lost their original colour when combined. Perhaps the fuliginous sweats, and dark coloured, or black urine, with a livid sediment, which sometimes happen in fevers of the malignant kind, arise from a broken corrupted state of the blood-globules. I have seen several times the urine rendered almost quite black, depositing an immense quantity of matter nearly of the colour of coffee-grounds. And we are sometimes surprised to see the face and hands of the sick grow dirty, and sooty, as it were, though all imaginable care was taken to keep them clean.

Besides, there are some things that seem to destroy the copula of the blood-globules, and greatly promote the secession of the six serous globules that compose them, one from another; particularly laurel-water, which makes the *crassamentum* vastly less dense, and exceedingly more soft and tender than natural, and turns the serum red, or the colour of Burgundy-wine, as appears from the experiments * of Dr. Nicholls and Dr. Langrish.† The bite of the serpent hæmorrhous ‖ causes such a dissolution of the blood, that it breaks forth from all parts of the body, even the very pores, and kills by an universal hæmorrhage. Possibly profuse sweats, diarrhœa, diabates, and spontaneous salivations, may arise from a kind of dissolution of the serous globules. A long and large use of mercury will turn the whole mass of blood into a mere watery colluvies.

But, as I said before, this broken, corrupted state of the blood-globules is, in general, the effect of acrimony. ‡ *Sal volatile oleosum* mixed with blood fresh drawn, destroys or dissolves the globules in less than a minute;** spirits of hartshorn, taken in large quantities, will produce hæmorrhages; and so will frequent and large doses of aloetics, as I have again and again observed. Indeed, such a state of blood is commonly brought on by acrimonious diet, medicines, &c. Thus the salt and half rotten provisions of sailors, in long voyages, cause such a sharpness and corruption of the humours, that they are rendered almost unfit for the com-

* Dr. Hodges, of the plague, observed purple sweats in it, and some like blood.

† Vid. Obs. nostr. de Aere & Morb. Epidem. vol. I. ann. 1735. Mart. & Aprili; & vol. II. Anno 1740, Junio.

* Dr. Mead of Poisons, 3d Edit. p. 270.

† See his Experiments on Brutes.

‡ See Lucan, Dioscorid. Nicander in Theriacis, &c. Dr. Mead of Poisons.

‖ See Leeuwenhoek. Epist. ad. Christoph. Wren. Arcan. Natur.

** Arbuthnot of Diet, p. 106.

mon

mon uſes of life, producing great weakneſs, languors, wandering pains and aches, ſtinking breath, corroded ſpongy gums, black, blue, and fallow ſpots, ſordid, dark, livid, fungous ulcers, gangrenes, &c. and ſuch ſcorbutics frequently fall into petechial fevers, bloody dyſenteries, hæmorrhages, &c. What is mentioned by the Rev. Mr. Walter, in Lord Anſon's voyage, is very ſurpriſing, viz. that the blood burſt forth from the wounds of ſome of the ſcorbutics, after they had been cicatriſed for twenty or thirty years. I have known many a ſhip's company ſet out on a cruiſe in high health, and yet in two or three months return vaſtly ſickly, and eaten out with the ſcurvy, a third part of them being half rotten, and utterly unfit for ſervice. About four or five weeks after they have been out, they begin to drop down one after another, and at length by dozens, till at laſt, ſcarce half the compliment can ſtand to their duty. Particularly I remember, ſome years ſince, from a ſquadron under Admiral Martin, we had near 1200 men put on ſhore ſick at one time, though they went out very healthy, and returned in about twelve or thirteen weeks.*

Thoſe who accuſtom themſelves to take largely of volatile and fixed alcalious ſalts, ſpecies, and aloetics, are always ſubject to theſe maladies.—Not a few of thoſe, who took the *alcalious ſaponaceous hotch-potch of* Mrs. Stephens, and the ſoap lees, for a long time together, fell into hectical heats, a hot ſcurvy, hæmorrhages, dyſentery, &c. A remarkable inſtance of this lately happened to a gentleman of the Weſt of Cornwall, who, for ſeveral years had labourred under a ſtone in his bladder.

He was originally of a very tender conſtitution, and had taken the lixivium, &c. for ſeveral weeks, till at length his gums began to grow exceeding ſpongy, inflamed, and livid, at laſt extremely ſore and putrid, inſomuch that the fleſh might be pulled off with the greateſt eaſe; they bled conſiderably on the leaſt preſſure, and a thin bloody ichor continually leaked off from them. Livid ſpots alſo appeared on him, and his legs, and thighs eſpecially, became vaſtly ſore, and of a claret colour, or rather more livid, ſo that a mortification was feared. Upon this, I was conſulted for him, by Mr. Hingſton, a very ſkilful apothecary of Penryn, who ſtated his caſe. Apprehending an alcaleſcent putrid ſtate of the humours, and a diſſolution of the blood from the courſe he had gone through, and the ſymptoms he now laboured under, I adviſed the decoction and extract of the bark with elixir vitrioli, and ſub-acid drinks and diet; which ſoon took off the inflammation, ſponginess, and bleeding of his gums, and prevented the farther advance of the livid colour of his thighs, &c. which in a few days diſappeared. About ſome two or three weeks after, a copious eruption of red fiery puſtules broke out upon him, which ſeemed to promiſe ſome advantage. However, being reduced exceeding weak by a complication of diſorders, and a confirmed hectic, he died quite tabid, about a fortnight or three weeks after. A very large ſtone was taken out of his bladder after his death, of the ſhape of a pear, weighing eight ounces and half a drachm avoirdupois; the ſmaller end lay towards the neck of the bladder.

It unqueſtionably appears from experiments made on the urine of thoſe that have taken pretty largely of the lixivium, or Mrs. Stephens's medicines, that the urine becomes alca-

* Upon this, I drew up a propoſal for preventing the ſcurvy among the ſailors, which I communicated to ſeveral captains and ſurgeons of the men of war. This I afterwards publiſhed in the General Evening Poſt in October 1747, which was re-publiſhed in the Gentleman's Magazine, &c. for October 1747. As it hath ſince been tried with ſucceſs, both in the men of war and privateers, and, as I am fully convinced of its uſefulneſs, I again recommend it.

lious,* and of courſe the ſerum of the blood likewiſe, from whence it was ſecreted. This is indeed a very ſtrong argument in favour of the lithontriptic or diſſolvent power of the medicines; as they have undoubtedly this effect on human calculi, when macerated in them out of the body. But I think, at the ſame time, it gives us juſt reaſon to ſuſpect very dangerous conſequences from a long uſe of ſuch things, eſpecially in ſome tender conſtitutions.

It is well known, that volatile alcali ſalts, mixed with the blood when juſt drawn, or rather as it runs from the vein, keep it from coagulating, and hinder it from ſeparating into craſſamentum and ſerum, as uſual. The experiment is eaſy, and every one will find it true on trial. This very adequately reſembles the blood drawn from the bleeding ſcorbutics, and alſo from moſt perſons that labour under putrid petechial fevers, when the blood is drawn very early in the diſeaſe.

All humours of the body, actually putrefied, become a ſtrong alcali, and putrid blood loſes its conſiſtence, and ſoon after its colour, running into a yellowiſh dark-coloured ſanies. The blood drawn in ſome greatly-putrid petechial fevers hath had this appearance, and been obſerved actually to ſtink as ſoon as drawn, † as well as the urine as ſoon as made; ſo far was the putrefaction advanced, whilſt even life was ſtill ſubſiſting. The ſurpriſingly great and ſpeedy corruption of bodies, dying of peſtilential fevers with ſpots, ſhews this likewiſe. I have known ſuch a corpſe *air* ‖ as much, as they call it, in ſeven or eight hours, as dead bodies commonly do in ſeven or eight days, and to leak out a moſt putrid ſanies from all the outlets of the body; which, by the bye, is a reaſon why perſons, dying of ſuch fevers, ſhould be buried very ſoon.

Some kinds of poiſons, as particularly the bite of a viper, and ſome other venomous animals, bring on a very ſudden corruption and diſſolution of the blood, and turn it into a yellowiſh ſanies. Peſtilential effluvia alſo ſoon deſtroy the craſis of the blood, and produce an univerſal gangrenous diſpoſition in the humours. This is evident, from the frequent and fatal hæmorrhages, exceſſively fœtid ſweats, vomitings, and ſtools, and the general necroſis that follows, which have been obſerved in the plague and peſtilential fevers by the beſt authors.* The hæmorrhages, in particular, are often vaſtly profuſe and obſtinate in the plague; and I have many times noted the ſame in peſtilential and petechial fevers; and the blood, thus iſſuing, doth not coagulate † as uſual. All arguments of the higheſt acrimony and diſſolution of the blood.

The contagion of the ſmall-pox ſeems to effect ſome conſtitutions much in the ſame manner, producing ſpots, putrefaction, and vaſt effuſions of blood from ſeveral parts of the body, ſometimes even at one and the ſame time. I have ſeen many inſtances in this diſeaſe, where, within four or five days from the ſeizure, purples have appeared all over the body, and hæmorrhages from ſeveral parts in a profuſe manner: particularly the uterus, urinary paſſages, and noſe; and the puſtules have turned quite black, a bloody ichor iſſuing from them in abundance; and this too where no violent ſymptoms of any kind had preceded. Little Miſs R—n, about five years old, had ſuch a kind about fourteen years ago; they came out with ſcarce any conſiderable fever, pain, ſickneſs, or the like, yet ſpots appeared at the ſame time very large, livid, and black. The pox were but

* See the Experiments of Dr. Hartley. Rutty. Monſ. Morand, &c. on this matter.

† Vid. Vander Mye de Morbis Bredanis. Morton, Pyretolog. Prolegomen, p. 26.

‖ De Aere & Morb. Epidem. Vol. I. Mar. 1735.

* Particularly Diemerbroek, Hodges, and the authors in Traite de la Peſte fait par ordre du Roy, Paris 1744. 4to.

† Traite de la Peſte, Part I. p. 345.

few,

few, some of which, about the lips, internal parts of the cheeks, and tongue, turned very black, and bled pretty largely. The child was often taken with a slight deliquium, and forthwith would return to her play-things as before. At length she brought off pretty much florid blood, and some black and coagulated, by stools, and sunk away insensibly, as it were, into the arms of death, about the ninth day from the attack of the disease.

I lately saw a dreadful case of this kind in Miss B—y, a young gentlewoman, who had much fatigued herself in very hot weather (immediately before the seizure with the small-pox) by walking, riding, dancing, &c. She had millions of truly-small pox, and a vast number of black and blue spots, that broke out all over her body the third day inclusive from the seizure, and her legs and thighs appeared quite purple; she bled at the gums and nose very largely, and yet at the same time had a very profuse discharge of the catamenia about six days before the regular period. She died the sixth day from the attack. She had from first to last an inexpressible load at her breast, with vast anxiety, frequent faintings, and a vastly quick, fluttering, small pulse.

It is always a fatal prognostic when spots and hæmorrhages appear at the very eruption of the small-pox, and the sick seldom or never survive the ninth day of the disease; the blood running into immediate dissolution and putrefaction. I am persuaded, scarce one in a thousand recovers under these dreadful circumstances; especially if the spots are very livid, black, and numerous. If any thing is to be done in these deplorable cases, it must be by timely and duly administering acids, the bark, and astringent alexipharmics; which certainly have oftentimes exceeding good effects in petechial fevers attended with hæmorrhages. Dr. Mead, in his late elegant Treatise De Variolis & Morbillis,† hath given us reason to hope for success by the use of these medicines, in the bleeding and petechial small-pox, and also the method of exhibiting them.

This dissolved state of the blood also often happens in putrid malignant fevers, arising frequently from contagion; but is sometimes the mere effect of a fever seizing persons of an acrimonious state of the blood and humours, which is the case of the highly scorbutic. The former acting in an analogous manner to the poison of the viper on the blood; the latter by the power of the saline spicula on the blood-globules, which is now greatly encreased by the febrile motion and effervescence of the blood. Thus an inflammatory tumour in persons of a good, sweet, sound constitution, suppurates into a kindly laudable matter; in a very sharp state of humours, it turns either into a gangrenous sanies, or cancerous ichor. What the action of animal heat and motion will do, on the salts of the animal humours, may be seen in the case of those that die of famine: for take the soundest person, and deprive him of all liquid and solid aliment, the salts become continually more and more acrimonious; till at length a fever, delirium, &c. are brought on by their great irritation, which soon ends in universal putrefaction and death. You may see how this putrescence of humours advances, by taking a healthy nurse, whose milk, for some hours after eating, is white, thin, sweet, and grateful; let her fast for sixteen or eighteen hours, it becomes thick, yellow, salt, and disagreeable: let her farther abstain for some few hours longer, it turns of a much deeper yellow, nauseous, and even stinking; and all this much more so if she happens to labour under a fever, a bloody kind of matter issuing instead of milk.—If this happens to the most ascescent and sweetest humour of the body,

† Cap. iii. De variolarum curationibus.

what think you happens to the bile, lymph, &c. ?

Where the heat and attrition of the blood are very conſiderable, its putrefaction advances ſurpriſingly faſt. It appears from * Boerhaave's experiment on a dog, ſhut up in a hot ſugar-baker's ſtove, that the whole maſs of humours was corrupted to ſo high a degree, in a few minutes, as to give off an inſupportable ſtench; and ſo diſſolved, that the very ſaliva became bloody; and ſo horribly offenſive, as to throw a ſtrong man, concerned in the experiment, into faintings.

The animal humours naturally run into diſſolution and putrefaction, unleſs prevented and corrected by daily ſupplies of aſceſcent aliment; a diet merely of fleſh, fiſh, ſpices, and water, will very ſoon bring on a putrid fever. Bread is not only the ſtaff of life, as nouriſhment, but as it alſo corrects, by its aſceſcent quality, the rank juices of animal food. The Spaniſh and French priſoners here, by eating unuſual and immoderate quantities of fleſh, brought on ſuch dangerous fevers as carried off vaſt numbers of them.—They were ſo fond of it, that they died, as it were, with fleſh in their mouths frequently.

But thus much for the generation of alcaleſcent acrimony in the blood: let me add, that it ſeems to appear, from what is above ſaid, that, in ſome caſes, the animal ſalts are rendered actually alcaline, volatile, corroſive, and deſtructive of the blood-globules, as well as the *minima vaſcula*, while even life ſubſiſts. When the animal oils are alſo highly exalted and rancid, they unite with theſe ſalts, and make a moſt deſtructive diſſolving ſapo, much of the nature of putrid bile, which corrodes and diſſolves all the principles of life.

Now, as, on the one hand, an acrimonious ſtate of blood may be complicated with too tenſe rigid fibres, and an inflammatory tentor; ſo, on the other, it may conſiſt with a thin diſſolved ſtate of blood and weak lax fibres.

Let us put contagion for acrimony (for it acts in a like manner, and eventually proves ſo) and we have the caſes very juſtly exemplified in the ſmall-pox; where the diſeaſe is ſometimes attended with a very viſcid ſtate of blood, high inflammatory fever, violent acute pains, peripneumonic ſymptoms, phrenzy and the like: ſometimes, on the contrary, with a weak diſſolved blood, a low ſlow pulſe, or a weak and quick one, nervous ſymptoms, thin crude urine, various and profuſe hæmorrhages, little or no pain, ſwelling, ſoreneſs, or the like. In the former caſe the fever runs too high, and burns up the patient; in the latter there is not fever enough to make a complete protruſion and maturation of the puſtules, but they remain ſeſſile, crude, and undigeſted; whence at laſt the whole maſs of blood runs into a putrid corroſive ichor, or a gangrenous ſanies.

Take another view of this matter. I have many times known pulmonic, or pleuro-peripneumonic fevers attack perſons of a very thin acrid ſtate of blood, which have been attended with a very conſiderable degree of inflammation. This happens very frequently to ſcorbutic ſea-faring perſons.

In the years 1740 and 1745, abundance of people were ſeized with ſhivering, then great heats, fever, and difficulty of breathing, importunate laborious coughs, very acute darting pains of the breaſts, ſides, and back, and frequently alſo in the head and temples. They had oftentimes a very quick hard pulſe, but concentrated, as it were; the breath was very hot and offenſive, and the matter they expectorated was ſometimes thin and crude, and ſometimes as yellow as ſaffron; but much more commonly a thin, gleety, bloody matter, frequently very fœtid, and ſometimes ſo acrid as to cauſe a great hoarſeneſs, and

† Vide Boerhaavii Chem. Cap. de Igne, Experiment xx. Coroll. 16.

and ſoreneſs of the wind-pipe and throat, and ſometimes excoriations of thoſe parts.

The blood drawn from them was either of a darkiſh livid colour, covered over with a lead-coloured or greeniſh thin film, or ſometimes quite florid (particularly on the firſt bleeding) but of a looſe ſoft conſiſtence when cold; the ſpecious appearance often ſurpriſing the ſurgeon, or apothecary, who expected quite another appearance of the blood, conſidering the ſymptoms. However, in many of theſe fevers, the blood drawn was covered over with a pretty thick tough coat, not of a whitiſh yellow colour, as uſual in common pleuritic or pleuro-peripneumonic blood, but of a colour approaching to that of a cornelian ſtone, or a little more dilute than that of the common jelly of red currants. This colour of the buff on blood, I conſtantly obſerve to be of ill omen. I conjecture becauſe it indicates both a great glutinoſity, and alſo a very great quantity of acrid ſalts, in the blood, which break its globules, and put it into a putrid diſſolving ſtate; for this appearance ſeems to ariſe from the broken globules inviſcated by the inflammatory ſize. If a portion of volatile-alcali ſalt be mixed with the blood of a perſon in a high pleuriſy, as it runs off from the vein, the upper part of the craſſamentum will greatly reſemble that of the blood, which I have juſt mentioned. And it is farther remarkable, that the ſerum of ſuch kind of blood hath very often a bloody tinge, almoſt as high as Burgundy-wine; and ſo indeed frequently had the ſerum of the other kinds of blood, though many times it appeared only of a turbid yellow colour. The urine was commonly very high, and ſometimes dark-coloured, with a kind of lead-coloured ſediment; it was generally rendered in ſmall quantities. Faint, uncertain, partial ſweats, often attended, particularly about the face and head; although many times, towards the fatal period, they were very profuſe and colliquative. Livid, or black ſpots, frequently appeared about the ſtate of the diſeaſe, and I think ſeldom or never failed of being the certain harbingers of death. The black and brown thruſh, which alſo ſometimes broke out towards the cloſe, were not of a much more favourable prognoſtic. But an univerſal, burning, itching raſh, ſometimes terminated the fever; and ſometimes it ended in an eruption of very large, angry, ulcerating puſtules on the neck, ſhoulders, and arms, but more eſpecially about the noſe and lips.

But of this kind of peripneumonic fever more hereafter, with the method of treating it. I ſhall only at preſent take notice, that at the ſame time when this malignant peripneumony, if I may ſo call it, reigned in Plymouth and its neighbourhood, pleuriſies, peripneumonies, and pleuro-peripneumonies, were every where epidemic, and generally of the true inflammatory kind, ariſing from the cold dry northerly and eaſterly winds, which had for a long time prevailed. In theſe the blood was very denſe and ſizy, and moſt commonly covered over with a very thick, white, or yellowiſh buff; and the ſick bore the loſs of blood well and to advantage, even to forty ounces, or upwards ſometimes. Whereas the blood, in the malignant pulmonic fever, was as I have above deſcribed it; and when it was conſiderably buffy, it had the above-mentioned appearance, and the patients often ſunk ſurpriſingly after the firſt or ſecond bleeding; ſometimes, indeed, to my great concern and aſtoniſhment, when, from the hard pulſe, great load at breaſt, pungent pain of the ſide, and ſeverity of the cough, I thought I had ſufficient warranty for adviſing it. Beſides, though theſe latter expectorated pretty large quantities of crude and thin, or more frequently of a glecty bloody matter, they were not at all relieved; whereas, when the former ſpit off largely and freely, it was of the higheſt advantage.

Now

Now I muſt farther take notice, that, cotemporary with both theſe diſorders, a contagious, putrid, petechial fever, was very rife in and about this town, eſpecially among the ſailors and priſoners, and thoſe that were very converſant with them; and it was chiefly among thoſe ſorts of perſons that the malignant pulmonic fever raged. So that this ſeemed to be a complication of the common inflammatory peripneumony with the contagious petechial fever. The contagious effluvia acting on the blood in the manner of acrimonious ſalts, and deſtroying its craſis. It is certain we frequently meet with peripneumonies of this kind, merely from the ſharp acrid ſtate of the humours of thoſe that are ſeized with them.

Now theſe are fevers, in which an inflammatory tenor is complicated with a greater degree of acrimony, or blended with a kind of poiſonous diſſolving effluvia. But we often meet with others, in which a very high acrimony of the humours is combined with a too lax ſtate of the veſſels, and too looſely compacted blood-globules; which is the caſe very commonly in petechial fevers, eſpecially ſuch as are attended with hæmorrhages.

I here beg leave to give the hiſtory of ſuch an one, which I think was the ſevereſt that ever any one ſuffered under, who ſurvived the diſeaſe. And the rather, as I ſhall ſpecify the method of his cure; which not only in his caſe, but in ſeveral others of the like nature, though not degree, I have experienced to be highly beneficial; and which, I am perſuaded, is the only ſucceſsful courſe that can be uſed in them, however different it may ſeem from the common practice.

An eminent ſurgeon of a neighbouring town, of a thin and ſomewhat tender conſtitution, but conſtantly uſed to action and exerciſe, and frequently ſubject to fevers, and ſcorbutic rheumatiſms, from taking cold, &c. in October 1741, fell into a kind of ſlow fever, attended with ſlight rigors, frequent flushes of heat, a quick weak pulſe, loſs of ſtrength and appetite, with a great load at his breaſt, and a heavy ſort of reſpiration. Notwithſtanding this, he continued in his buſineſs, conſtantly riding, and fatiguing himſelf for ſome four or five days after this ſeizure. I met him at a gentleman's houſe, who was my patient, and finding him as above, and that his breath was, even then, very offenſive, I earneſtly deſired him to take timely and due care of himſelf. Two days after, he, being at a gentleman's in the neighbourhood, was taken all on a ſudden with a very great faintneſs, and fell off his chair; upon lifting him up, the company obſerved ſeveral livid and violet-coloured ſpots on his arms and neck. It was with very great difficulty they got him home, though but two or three miles diſtance, he very frequently fainting by the way. The diſorder encreaſed every moment, he had a vaſt languor, with pain and extreme oppreſſion on the præcordia, and a perpetual ſighing; his breath now ſtank abominably, and a fœtid bloody matter leaked continually from his gums, and thouſands of livid, violet, and black ſpots, appeared all over his body, on the trunk, as well as the limbs.

He was bled to about twelve ounces from his arm, but this gave him no manner of relief, the oppreſſion, ſighing, fainting, and anxiety, continuing as bad as ever, nay, rather increaſing; a violent hæmorrhage alſo broke forth from his noſe; which continuing from both noſtrils, he was bled again to ten ounces about twelve hours after the former bleeding. Neither did this give him any relief, but encreaſed his weakneſs conſiderably, and he continued as anxious, reſtleſs, and oppreſſed as ever, without even the leaſt ſleep. The blood now not only iſſued from his gums and noſe, but he alſo coughed up blood. Indeed the bleeding from his noſe had ceaſed ſomewhat, but it encreaſed from his gums,

and

ded in a surprising manner. Blood now likewise dropped, though slowly, from the caruncle of one of his eyes; and several livid pustules on his tongue, and within side his lips, broke, and discharged a bloody, thin matter very copiously.

The hæmorrhage being somewhat restrained, a bloody dysentary came on, with severe gripes, and excessive faintness, and he was still exceedingly restless, and very feverish. His pulse now intermitted every sixth or eighth pulsation, and then fluttered on again vastly quick; he had likewise a constant tremor and subsultus. The hæmorrhage all this while continued from one part or other, and when stopped at one place, forthwith burst out at another; so that his urine now seemed tinged with blood, being very dark-coloured, nay, almost black. Soon after he was bled the second time, I was sent for, and hastened to him. I found him in the manner described, under an inexpressible anxiety, yet quite free from a delirium, though he had no manner of sleep for several days and nights. His tongue was vastly black, and his breath so intolerably stinking, that it was greatly offensive even at a considerable distance; and his stools were so horribly nauseous and fœtid, that the very nurses fell into vomitings and faintness in carrying them off.

I found that neither of the portions of the blood that had been drawn (not even the first) had separated into crassamentum and serum as usual, though the former had stood so many hours; but continued as it were half coagulated, and of a bluish livid colour on the top. It was most easily divided by the slightest touch, and seemed a purulent sanies rather than blood, with a kind of sooty powder at bottom. His hæmorrhage still continued, especially from the tongue, lips, and gums, with a perpetual dripping of thin bloody ichor from his nose, so that he was reduced to an extreme degree of weakness, with never-ceasing tremblings, *subsultus tendinum*, and almost continual faintings.

What was to be done in this dreadful case? Would the hot, alexipharmic, volatile cordials and blisters have served him, as some might have imagined, considering his extreme weakness, faintings, load of the præcordia, tremblings, &c.? But would they not have been certainly deleterious, would they not have certainly killed him, as they would have added to the stimulating acrimony, encreased the fever, and farther destroyed the crasis of the blood, already nearly quite dissolved, and reduced to a kind of putrid gore?

I took it in this view, and as I had experimentally and repeatedly known the great use of the bark * in preventing and stopping the advance of gangrenes, I gave him frequently of it in small doses with elixir vitrioli, premising a small quantity of rhubarb. Besides this, he drank tincture of roses, with cinnamon water, made very acid, and also a decoction of Seville orange rind, red roses, cinnamon, and a little Japan earth (as it is called) well acidulated. Claret and red-port, with about half water, he drank at pleasure. As the bark sat easy with him, I continued its use, and encreased its quantity, giving with it some confect. fracast. sine melle, to restrain the dysenterie flux; and yet I now and then interposed a small dose of rhubarb, to carry off any bloody, bilious, or sanious matter that might be lodged in, or leak into the intestines. In the mean time, I ordered him to be frequently supported with rice, panada, sago, jellies of harts-horn well acidulated, toast out of claret, or red port wine; and I directed fomentations of aromatics and astringents, boiled in red wine, to be frequently applied to the whole abdomen.

By this method, steadily persisted in,

* Besides, I had formerly given the bark with success in the malignant petechial fever of 1735. Vid. Obs. de Aere et Morb. Epidem. Mense Maio.

was

was this poor gentleman, through divine goodneſs, raiſed from a ſtate of univerſal rottenneſs, as it were, to perfect health; not but that, for a very conſiderable time after his fever was quite gone off, he continued extremely weak; and even after he was capable of walking abroad, the hæmorrhage from his noſe would return on the leaſt occcaſion, his gums would bleed on the ſlighteſt rubbing, and his breath continued very offenſive for a long time. By the further uſe of the cortex, elix. vitrioli, &c. this alſo entirely ceaſed; but his legs and feet continued very much ſwoln for a much longer time, and his fleſh all over the whole body remained exceeding ſoft, tender, and ſore, ſcarce bearing the leaſt touch. Rhabarbarate purges, eaſy ſtomachic chalybeates, elixir of vitriol, pyrmont water, with proper diureties, and gentle regular exerciſe, at length carried off all thoſe ſymptoms; and in about two or three months he recovered a good ſtate of health, which he ſtill enjoys.

I met with ſeveral of theſe petechial fevers, with hæmorrhages in the ſummer and autumn of 1745; particularly a gentlewoman, of Anthony, near Plymouth, was ſeized with ſuch a fever, with ſymptoms nearly reſembling thoſe in the above-mentioned caſe, though not in ſo high a degree. She fell into an immenſe diſcharge from the uterus, though out of ſeaſon, after a very profuſe hæmorrhage from the noſe; ſhe bled alſo from the gums, and at laſt had a bloody dyſentery. She had a ſtrong phrenzy before the bleeding from the noſe came on, and had a vaſt number of purple and black ſpots all over her body, ſome as large, at leaſt, as a ſilver-penny. I treated her exactly in the manner aforeſaid, and ſhe happily recovered, though her legs were greatly ſwoln after it, and ſhe continued in a long ſtate of weakneſs. She was twice bled before I ſaw her; the firſt blood I ſaw not, but Mr. Freke, her ſurgeon, told me it was very florid and rich (as he called it) but very ſoft, and gave off a very ſmall quantity of reddiſh ſerum. I ſaw the ſecond, which was of a very dark black colour, covered with a very thin, tender, greeniſh ſkin. Her urine, during the whole time of the fever almoſt, was like white wine, or cyder, that ſtands long expoſed to the air, and turns black; at length, however, a kind of a dark-coloured mealy ſediment was depoſited.

The fever, which attends gangrenes, is commonly of this kind, corrupting and diſſolving the blood; the ſanious matter of the gangrened part, being reſorbed into the maſs of blood, produces an univerſal gangrenous diſpoſition in the humours, and diſſolves the found red globules; whence ſpots, hæmorrhages, black tongues, delirium, &c. ſupervene. Celſus * juſtly obſerves, that an acute fever, delirium, great thirſt, and ſtinking breath, accompany a gangrene; all ſigns of corruption of the blood, and high acrimony. I will inſtance but in one caſe, which, I think, is pretty uncommon in ſeveral circumſtances.

Mrs. Eliſabeth S——h, of St. Germain's, in Cornwall, about twenty-five, of a weak conſtitution, and bad habit of body, who never had any regular catamenia, was taken at the latter end of May, 1742, with a pain in the right foot near the toes, and with a torpor all over the leg, which hourly encreaſing, ſhe ſent for Mr. Dyer, an ingenious ſurgeon at Looe, who rubbed the part with camphorated ſpirit of wine, and gave her ſome nervous and cordial medicines. This having no effect, he fomented with a very warm aromatic decoction, applying the magma with ſpirits, theriaca, &c. to the leg and foot; notwithſtanding which, the parts grew ſoon diſcoloured, cold and quite inſenſible. When I came, I ordered the parts to be ſcarified, and that deeply, but not the leaſt blood iſſued, only a few drops of quite black blood here and there ſlowly roſe up, of the bigneſs of a pea; the ſkin and fleſh

* Lib. V. Cap. 26.

looked

looked as if the leg had been cut off for ſome days, though this was but in the forenoon of the fourth day from the very firſt ſeizure. There were no veſications, nor did the ſcarifications afterwards emit the leaſt ſtench, matter, or ſanies. I immediately ordered her the bark with elixir vitriol. confect. Ralegh. and a warm acidulated julep, which ſhe took freely, as ſhe was vaſtly faint. A violent pain ſeized her in the afternoon in her right thigh and groin, and forthwith a fever, ſevere gripings, and a bloody flux, came on, which preſently reduced her to the utmoſt degree of weakneſs, with perpetual faintings and agonies.

The enſuing night ſhe grew very delirious, her tongue became quite black and faultering, her pulſe exceeding quick, weak, and fluttering, with continual catchings of the tendons, and tremors. As the cortex did not ſit well, but ran down, I gave her a ſtrong tincture of it with decoct. fracaſtor. elix. vitriol. &c. which had a much better effect.

In this miſerable condition ſhe continued for three or four days, every one about her hourly expecting her death; however, the ſphacelation did not advance, and never appeared above the knee, though a very vehement pain affected the whole thigh, and ſeemed chiefly in the perioſteum of the bone. At length there appeared a dark livid ſtreak or line all round the limb, immediately under the knee, and pointed out where nature was diſpoſed to ſeparate the dead part from the living. This tendency to ſeparation became every day more and more viſible, and the ſurgeon uſed all proper means to promote it: for whatever foundation there might have been for an amputation, neither ſhe, nor her friends, would admit of it. In theſe deplorable circumſtances (the dead part of the limb daily rotting off from the ſound) ſhe continued till July the 14th, when the ſurgeon, finding the ſlough caſt off, and a ſeparation at the joint almoſt perfectly made, took off, with a knife, the dead leg from the ſound thigh, at the very articulation, with very little pain, without her conſent, and almoſt without her knowledge of it, when it was done. Soon after this ſhe daily recovered, and, by proper diet and medicines, was in a little time reſtored to a tolerable ſtate of health.

CHAP. VI.

Of the difference between a ſlow nervous, and a putrid malignant fever.

I Cannot conclude this eſſay on fevers, without taking notice of the very great difference there is between the putrid malignant, and the ſlow nervous fever; the want of which diſtinction, I am fully perſuaded, hath been often productive of no ſmall errors in practice, as they reſemble one another in ſome reſpects, though very eſſentially different in others. And this I the rather do now, as I have not ſufficiently noted the difference in my *Diſſertation de Febribus lentis & nervoſis.* Nor do I know of any author, that hath done it explicitly, beſides Dr. Langriſh in his Modern Theory and Practice.

By what hath been ſaid above, I think, it evidently appears, that in putrid malignant and petechial fevers, the blood, peculiarly ſo called, is affected; whereas the ſlow nervous fevers ſeem to have their ſeat chiefly in the lymphatic and nervous juices. Corruption of the humours, and diſſolution of the blood, are in a high degree obſerveable in the former; but the ſlow nervous fever frequently runs on to a great length of time, without any conſiderable ſigns of putrefaction.

Beſides, theſe two different kinds of fevers may be artificially produced, if I may ſo ſpeak, by two very different kinds of diet, regi-

men, &c. and are too often actually effected. The hot, acrid, saline, volatile, and spicy food and medicines, very hot air, &c. will produce a putrid malignant: on the contrary, cold, watery, slimy, mucilaginous things, as cucumbers, melons, crude trashy fruit, vapid liquors, damp cold air, &c. bring on slow nervous fevers.

Could we suppose both the one and the other to arise from contagion, (which is commonly the case in pestilential and petechial fevers, and may sometimes be so in the slow nervous) I should liken the action of the morbific effluvia in the former, to that of the poison of a viper, which immediately affects and destroys the texture of the blood-globules, and brings on a very speedy corruption: but in the latter, to the virus of a mad dog, which works but slowly, and seems primarily to affect the lymph and succus nervosus, and manifests no signs of putridity, at least till the very close of the tragedy.

Now as these two fevers have a very different origin, they cannot but shew their effects in different symptoms, and require a very different method of cure; and yet I am very sensible, the one may be, and very often is, blended with the other; I mean, that a very acrimonious state of blood may subsist under a very weak relaxed system of vessels, and may not shew itself with so much violence, as if the moving powers and vessels were more strong and elastic, and much more susceptive of the stimulus of the morbid acrimonious salts, &c. and of course more slow in its progress, though perhaps equally fatal. The different antecedent state of the fibres, and powers of nature, where contagion is the proximate cause of the disease, doth undoubtedly alter the nature of the subsequent fever very greatly. By carefully describing both these fevers, their nature and difference will more fully appear.

CHAP. VII.

Of the slow nervous fever.

I Begin with a description of the slow nervous fever, which hath been very exactly taken from too many, who have fallen victims to this insidious and dangerous enemy.

The patient at first grows somewhat listless, and feels slight chills and shudders, with uncertain sudden flushes of heat, and a kind of weariness all over, like what is felt after great fatigue: this is always attended with a sort of heaviness and dejection of spirit, and more or less of a load, pain, or giddiness of the head; a nausea and disrelish of every thing soon follows, without any considerable thirst, but frequently with urging to vomit, though little but insipid phlegm is brought up.

Though a kind of lucid interval of several hours sometimes intervenes, yet the symptoms return with aggravation, especially towards night: the head grows more heavy, or giddy, the heats greater, the pulse quicker, but weak, with an oppressive kind of breathing.—A great torpor, or obtuse pain and coldness, affects the hinder part of the head frequently, and oftentimes a heavy pain is felt on the top all along the coronary suture; this, and that of the back part of the head, generally attend nervous fevers, and are commonly succeeded by some degree of a delirium.

In this condition the patient often continues for five or six days, with a heavy pale sunk countenance, seeming not very sick, and yet far from being well; restless, anxious, and commonly quite void of sleep, though sometimes very drowsy and heavy: but although he appears to those about him actually to sleep, he is utterly insensible of it, and denies that he doth so.

The pulse, during all this time, is quick, weak, and unequal, sometimes

times fluttering, and sometimes for a few minutes slow, nay intermitting; and then, with a sudden flush in the face, immediately very quick, and perhaps soon after surprisingly calm and equal; and thus alternately. The heats and chills are as uncertain and unequal, sometimes a sudden colour and glow in the cheeks, while the tips of the nose and ears are cold, and the forehead at the same time in a cold dewy sweat. Nay, it is very common, that a high colour and heat appear in the face, when the extremities are quite cold.

The urine is commonly pale, and often limpid, frequently of a whey-colour, or like vapid small-beer, in which there is either no manner of sediment, or a kind of loose matter, like bran, irregularly scattered up and down in it. The tongue, at the beginning, is seldom or never dry or discoloured, but sometimes covered with a thin whitish mucus; at length indeed it often appears very dry, red, and chapped, or of the colour of pomegranate rind; but this mostly at the state, or close of the disease: yet, however dry the tongue and lips seem, the patient scarce ever complains of thirst, though sometimes of a heat in the tongue.

About the seventh or eighth day, the giddiness, pain, or heaviness of the head, become much greater, with a constant noise in it, or *tinnitus aurium*, which is very disturbing to the sick, and frequently brings on a delirium. The load on the præcordia, anxiety, and faintness, grow much more urgent, and they often fall into an actual deliquium, especially if they attempt to sit up; coldish sweats suddenly come on the forehead, and on the backs of the hands (though at the same time there is too much heat in the cheeks and the palms) and as suddenly go off. If the urine now grows more pale and limpid, a delirium is certainly to be expected, with universal tremors and *subsultus tendinum*; the delirium is seldom violent, but as it were a confusion of thought and action, muttering continually to themselves, and faultering in their speech: sometimes they wake only in a hurry and confusion, and presently recollect themselves, but forthwith fall into a muttering dozy state again.

The tongue grows often very dry at the state, especially in its middle part, with a yellow list on each side, and it trembles greatly when the sick attempt to put it out. When the tongue at this time grows more moist, and a copious spitting comes on, it is always a very good sign: but where a difficulty of swallowing, continual gulping, or choaking in the throat, supervene, it is a very dangerous symptom, especially if attended with any degree of singultus.

Frequently profuse sweats pour forth all at once about the ninth, tenth, or twelfth day, commonly coldish and clammy on the extremities; oftentimes very thin stools are discharged; both the one and the other are colliquative and very weakening. However, a warm moisture of the skin is generally salutary, and a gentle diarrhœa frequently carries off the delirium and comatose disposition.

Now nature sinks apace, the extremities grow cold, the nails pale or lived, the pulse may be said to tremble and flutter rather than to beat, the vibrations being so exceeding weak and quick, that they can scarce be distinguished; though sometimes they creep on surprisingly slow and very frequently intermit. The sick become quite insensible and stupid, scarce affected with the loudest noise, or the strongest light; though at the beginning strangely susceptible of the impressions of either. The delirium now ends in a profound coma, and that soon in eternal sleep. The stools, urine, and tears, run off involuntarily, and denounce a speedy dissolution, as the vast tremblings and twitching of the nerves and tendons are preludes to a general convulsion, which at once snaps off the thread of

life. In one or other of these ways are the sick carried off, after having languished on for fourteen, eighteen, or twenty days; nay, sometimes much longer.

All persons grow deaf and stupid towards the end of the disease (some extremely deaf) though too quick and apprehensive at the beginning, insomuch that the least noise, or light, greatly offended them. Many, from their immoderate fears, seem to hurry themselves out of life, where little danger was apparent at the beginning; nay, several will not suffer themselves to sleep, from a vain fear of dozing quite away; and others, from the vast hurry, anxiety, and confusion, they are sensible of in it, or at their awaking. Where the deafness ends in an imposthume of the ear, it is generally a good symptom; and so it is also when a parotis suppurates, or a large pustular angry eruption breaks out about the lips and nose.

This is a description (tedious indeed, but pretty exact) of the slow nervous fever in its most aggravated circumstances. Wherein I have laid down the symptoms in the order in which they naturally come on; and this I think should be always observed in describing any disease. It most commonly attacks persons of weak nerves, a lax habit of body, and a poor thin blood; those who have suffered great evacuations, a long dejection of spirits, immoderate watchings, studies, fatigue, and the like; and also those who have used much crude unwholesome food, vapid impure drinks, or who have been confined long in damp, foul air; that have broken the vigor of their constitutions by salivations, too frequent purging, immoderate venery, &c. Whence I think it is evident, this disease arises from a too relaxed state of the solids, a poor weak blood, and a lentor and vapidity of the lymphatic and nervous juices. The very method of cure shews this, which consists in mild, stimulating, attenuating, and proper cordial, strengthening diet and medicines. Hippocrates somewhere notes, that the successful method of cure shews the nature of the disease.

Let us now, therefore, endeavour to shew the propereſt method of curing the fever.

It was another maxim of the great Hippocrates, that whoever knows the nature of the disease, knows the method of cure.* It is at least the indispensable duty of every physician, before he prescribes for his patient, to consider well his constitution, and the nature of his disease; for as Celsus elegantly says, *Æstimatio causæ sæpe morbum solvit* † And this is in no case more necessary that in fevers, in which the time is short, and experiments dangerous. Where the disorder doth not attack with great violence, it is better to wait a little, and observe the motions of nature, than be too precipitate. But it is rare that physicians are called in at the very beginning of slow fevers. Indeed, they are often too far advanced ere they are consulted.

From the history of the slow nervous fever, I think it is very evident that no great evacuations are proper (especially bleeding) particularly in persons of originally weak and lax constitutions, who are by far the most subject to it. I have known a common purge, injudiciously given at the beginning of this fever, immediately followed by surprising languors, syncope, and a large train of other ill symptoms. However, it may be necessary sometimes, even at the beginning, to cleanse the *primæ viæ*, by a gentle puke, a little rhubarb, manna, &c. If you give any thing drastic, be assured your patient will rue for it, and you will repent it. And here I cannot but observe, that a mild vomit may be given with much less ruffle to nature than a common purge, and indeed is useful, nay necessary, where nausea, load, and sickness at stomach, are urgent; which

* Lib. de arte sub finem. † Celsi Præfat. sub finem.

frequently

frequently happen at the attack of this fever. Clyſters of milk, ſugar, and ſalt, may be injected with ſafety and advantage every ſecond or third day, if nature wants to be prompted to ſtool.

The temperate, cordial, diaphoretic medicines, are certainly moſt proper in theſe fevers; and a well-regulated, ſupporting, diluting diet, is neceſſary. The latter of itſelf, judiciouſly managed, will go a great way in the cure, eſpecially aſſiſted by well-timed and well-applied bliſters, and a due care to keep the patient as quiet as poſſible, both in body and mind. But it ſhould be noted, that any ſtrong opiates are commonly very pernicious, however want of ſleep and a great reſtleſſneſs may ſeem to demand them. Mild diaphoretics, as pulv. contrayerv. comp. with a little caſtor and ſaffron, and ſmall quantities of theriac. Andromachi, or elixir paregoricum, have much better effects; which, by raiſing a gentle eaſy ſweat, or at leaſt a plentiful perſpiration, calm the hurry and tumult of the blood and ſpirits, whence ſoft refreſhing ſlumber ſucceeds. Where the confuſion and dejection of ſpirits are very conſiderable, galbanum or ſilphium, with a little camphor, ſhould be added; and bliſters ſhould be forthwith applied to the neck, occiput, or behind the ears; and during all this, a free uſe of thin wine-whey, ſome pleaſant ptiſan, or gruel, with a little ſoft wine, muſt be indulged. Indeed the patients, in this caſe, ſhould drink frequently: though ſuch quantities may not be neceſſary as in the ardent or even putrid malignant fevers; yet they ſhould be ſufficient to carry on the work of dilution, ſupport the ſweats, and ſupply the blood with freſh and wholeſome fluids, in lieu of the vapid, acrid latex, that is continually paſſing off. And I think, in this view, a thin chicken broth alſo is of ſervice both as food and phyſic, eſpecially towards the decline of the diſorder; and for the ſame reaſon thin jellies of harts-horn, ſago, panada, are uſeful, adding a little wine to them, and the juice of Seville orange or lemon.

It is obſervable, the ſick are never ſo eaſy as whilſt they are in a gentle eaſy ſweat; for this ſoon removes the exacerbations of heat, hurry, &c.—But profuſe ſweats ſhould never be encouraged, much leſs attempted by very ſtrong heating medicines, volatile alcalious ſalts, ſpirits, &c. eſpecially in the beginning, or advance of the fever; for they too much exhauſt the *liquidum vitale*, and are followed by a vaſt dejection of ſpirits, tremors, ſtarting of the tendons, and ſometimes end in rigors, cold clammy ſweats, ſyncope, or a comatoſe diſpoſition. Sometimes irregular partial heats and flushes ſucceed, with great anxiety, reſtleſſneſs, delirium, difficulty of breathing, and a vaſt load and oppreſſion on the *præcordia*; ſo as to incline the leſs cautious obſerver to think there may be ſomething peripneumonic in it. But even here beware of bleeding, for you will find the pulſe very ſmall and unequal, though very quick: Not only the weakneſs and fluttering of the pulſe contra-indicate bleeding, but alſo the pale, watery, limpid urine, which is commonly attendant. Theſe ſymptoms denote the load, anxiety, and oppreſſion on the *præcordia* to be from the nervous orgaſm, not from a peripneumonic obſtruction, or inflammation: the breathing in this caſe, though thick and laborious, is not hot, but a kind of a ſighing, or ſobbing reſpiration, nor is there many times any kind of cough concomitant; ſo that this is really from ſome degree of ſpaſm on the vitals, not from inflammation. And this is very manifeſt in hyſteric paroxyſms.

Here therefore the nervous cordial medicines are indicated, and bliſters to the thighs, legs, or arms. I commonly uſe the following bolus and ſaline draught.

℞ *Pulv. contrayerv. c. gr.* xv. *—
Croc. Anglic. gr. iii.—*Confect. Raleigh.*

* When vaſt tremors and ſubſultus tendi-

Ralegh. ℈i.—*Syr. croci. q.s. m. f bolus.*

℞ *Sal. C. C.* ℈ss.—*Succ. limon.* ʒiii.—*Aq. alexit. ſimpl.* ʒiſs.—*m. peracta effervescentia ana ſp. lavend. c. ſyr. croci, ana* ʒiſs. *m. f. hauſt.*

These, or the like, I order every 5th, 6th, or 8th hour, and a temperate cordial julep; *ſpiritus volatilis aromat.* or *fœtidus*, may be now and then given out of thin wine, or cyder-whey, or, which is in many cases better, out of thin muſtard-whey; which, without any more pompous apparatus, is not a contemptible medicine, especially for the poor. These gently ſtimulate the torpid veſſels, and raiſe their oſcillatory powers; they attenuate the humours and dilute them, and by theſe means promote eaſy relieving ſweats, which ſoon carry off the *erethiſm*, as the ancients called it. The ſaline draught, prepared as above, is much more apt to paſs by the pores of the ſkin than when made with ſalt of wormwood, which rather moves through the urinary paſſages. When I aſſert, from repeated experience, the uſe of the above-deſcribed draught in aſthmatic caſes, any one may eaſily judge of its efficacy in theſe.

But to return, this difficulty of breathing, anxiety, and oppreſſion, many times precede a miliary eruption, which often appears the ſeventh, ninth, or eleventh day of this fever, and ſometimes later: indeed, great anxiety and oppreſſion on the *præcordia* always precede puſtular eruptions of any kind, in all ſorts of fevers. Every one muſt know how ill-timed and improper bleeding would be on ſuch on occaſion, when the greateſt care ſhould be taken not to retard nature's operation in this particular, which is many times completely critical: on the contrary, it ſhould be promoted by ſoft eaſy cordials, proper diluents, and the like; and to theſe ſometimes a little theriaca Andromachi, or elixir aahmaticum, ſhould be added; which not only tend to calm the univerſal uneaſineſs commonly complained of, but alſo very effectually promote a diaphoreſis, or breathing kindly ſweats, with which the miliary eruptions freely and eaſily advance.

But however advantageous theſe commonly are, profuſe ſweats are ſeldom or never ſo, even though attended with a very large eruption; for I have known two or three crops of miliary puſtules ſucceed one another, and large ſweats, long continued, with no manner of relief to the patients; nay, of very great detriment, as they reduced them to an extreme degree of weakneſs. In truth, theſe large ſweats are much more commonly ſymptomatical than critical, and the conſequent eruption is very often the mere ſymptom of a ſymptom; for the miliary glands of the ſkin appear very turgid, and mimic a raſh upon profuſe ſweating, even in the moſt healthy.

In ſuch profuſe colliquative ſweats, I have very frequently given a little generous red-wine (diluted ſomewhat, if neceſſary) with the greateſt advantage; it preſently moderating the ſweat, ſupporting the patient, and keeping up alſo the miliary papulæ, if they happen likewiſe to attend.—Celſus adviſes *vinum auſterum meracium in morbo cardiaco*,* which I take to have been a ſpecies of nervous fever with colliquative ſweats. Towards the decline of the fever, where the ſweats are abundant and weakening, I moreover give ſmall doſes of the tincture of the bark, with ſaffron and ſnake-root, hereafter deſcribed, interpoſing now and then a doſe of rhubarb to carry off the putrid colluvies, in the firſt paſſages; which withal makes the remiſſions, or intermiſſions, which frequently happen in the decline of nervous fevers, more diſtant and manifeſt, and gives a fairer opportunity for preparations of the

num come on, I uſe muſk: half a ſcruple inſtead of the pulv. contrayerv. c. with great ſucceſs.

* Lib. III. Cap. 19.

the bark. I generally give it, about this time, out of the saline draughts made with salt of wormwood and juice of lemons, which makes them much more effectual. I am persuaded this method will shorten these fevers, even those with miliary eruptions, which too often run on to an exceeding great length, and are frequently attended with dangerous relapses. I have more than once known patients sick under this fever, after having been kept in a sweating method for five or six weeks together, and after having gone through three or four successive crops of miliary eruptions (as they are called) they all the while melting away, and weltering in their own sweat, and the bed rotting under them.

Though a gentle diarrhœa is sometimes of manifest service towards the end of this fever, crude, thin, colliquative stools, are very far from being so, but sink the sick surprisingly fast. Where they are livid, or of a kind of lead colour, whatever be the consistence, it is a dangerous appearance.

There is no evacuation of a more favourable portent, than a pretty free salivation without aphthæ; where this happens, with a kindly moisture of the skin, I never despair of my patient, however weak and stupid he may seem. Indeed, the deafness many times makes the sick, at the close of the distemper, appear much less sensible than they really are; not but that many, under these circumstances, escaping the grave, degenerate into mere idiots.

Under any of these evacuations, plentiful, supporting, diluting nourishment, is absolutely necessary to keep up the spirits, and repair the loss of the daily wasting juices, and mend the remaining. Indeed, when the patients are too heavy and stupid, they should be very frequently prompted to it; for it is even altogether as necessary as medicine.

We have very seldom any thing completely critical in this fever; in many cases only time itself seems to wear it off. The urine is scarce ever concocted, but crude, pale, and thin, through the whole course of the disorder, and frequently much too profuse; sometimes, indeed, after the exacerbations, or in the sweats, it is higher coloured, but without sediment, small in quantity, and commonly greasy, as it were.

It seems to me evident, that too great a lentor of the lymphatic and most exalted juices of the body, is one of the conjunct causes of slow nervous fevers; and I conceive, that as the serum, when once coagulated by feverish heat, never resolves into any fluid fit for the uses of the animal œconomy, but turns into an acrimonious putrilage; so the ropy stagnant lymph corrupts by degrees into a putrid ichor, which must be discharged from the body by its common outlets, or some artificial drains.

Though the pores of the skin, and the salival ducts, are found in general to be the most advantageous ways, yet it often partly runs off also by the intestines and urinary passages. Now though these discharges are many times very profuse, it is found by experience they are not to be too hastily suppressed, without causing a very dangerous translation of the morbid matter on the vital parts; a sudden check of the sweats being most commonly attended with convulsive rigors, vast uneasiness and oppression on the præcordia, syncope, &c. as nausea, sickness at stomach, colicks, and a delirium, are the common effects of potent astringents, prematurely administered. Nay, the blisters in this case are not to be hastily dried up; the more they discharge generally so much the better; and even if they ulcerate somewhat, it is commonly no unfavourable symptom; for though it may shew the acrimony of the humour drained off, it is a proof that nature hath strength enough to expel it. So that when the first blisters begin to heal up, others should be applied to other parts; for it is not merely

merely from the ſtimulus, but alſo from the drain they make, that they are ſerviceable. The large angry puſtules, that often break forth at or after the ſtate of this fever, and frequently ulcerate and run largely, are a kind of natural bliſters, which give vent to the putrid corroſive ichor, and ſufficiently indicate one way of giving nature relief.

Upon the whole, then, where any of theſe diſcharges are very immoderate, they may be prudently reſtrained, but not repelled; and therefore cold air, cold linen, cold liquors, or a cold regimen, are greatly improper. And yet to be always labouring by very hot cordials, volatile alcalious ſalts, and very hot air, to raiſe ſweats, and to continue them, is really melting, not mending your patient. And as to a vaſt number, and repeated eruptions, of the white and red miliary pimples, they not only ſhew the quantity of the diſeaſe (as we call it) but many times alſo the wrong meaſure of the phyſician. Do we ſucceed the better for throwing out a vaſt number of the ſmall-pox by a very hot regimen? And yet the latter bids much fairer for a completely critical diſcharge than the former. And I appeal to all experienced phyſicians, whether they ever ſaw large and profuſe ſweats of any ſervice in the ſmall-pox or meaſles: I am ſure I have very many times found them highly detrimental.

I have been the larger on this head, as I am fully perſuaded the common method of treating miliary fevers by very hot ſweating medicines and regimen, hath been the bane of thouſands. In a word, whether in miliary fevers, or the ſlow nervous without eruptions, the ſole end of medicine ſhould be to aſſiſt nature in her operations, and ſupport her under them; but in ſuch manner as may comport with the general laws of the animal œconomy; promoting by art where the diſcharges are deficient by nature, or reſtraining when profuſe and inordinate; taking care at the ſame time never to pervert, in any particular diſeaſe, any particular criſis, which by juſt obſervation, and long experience, hath been found regular, conſtant, and ſalutary, but always to favour it. Thus, to give an inſtance in the fever now treated of; when a diarrhœa happens too profuſe, it may be reſtrained by a gentle cordial opiate, as theriaca Andromachi, or the like, which, by quieting the irritation and promoting the cuticular diſcharge, moderates the flux; for gentle, eaſy, breathing ſweats, are always found advantageous. To ſtop it at once, by very ſtrong aſtringents, is to pervert nature's endeavours, as they tend to prevent both ſtool and ſweat. But whoever will be more fully informed of the method of treating the ſlow nervous fevers, may conſult a late judicious treatiſe of Sir Richard Manningham, on the Febricula, &c.

CHAP. VIII.

Of putrid, malignant, petechial Fevers.

LET us next take a view of the putrid, malignant, or peſtilential, petechial fevers, and then proceed to offer ſome few directions as to the method of cure.

The highly putrid, malignant, and even petechial fevers, many times ariſe from mere antecedent acrimony of the blood, agitated by the ſupervening fever, yet generally the peſtilential and petechial have their origin from contagion; and may therefore affect perſons of all conſtitutions, which will of courſe produce a great diverſity in the ſymptoms. For, as the received contagion acts nearly in the ſame manner as acrimony, it will have very different effects, when it invades a ſtrong vigorous conſtitution, and a rich ſizy blood, from what it will when it attacks a weak lax habit with a poor thin blood, and

a too

a too loose *crasis* of its globules; and from one and the other, when it falls in with a very acrimonious mass of humours.

In general, however, these fevers attack with much more violence than the slow nervous, the rigors, if any, are greater (sometimes they are very great) the heats much sharper and permanent, yet at first sudden, transient and remittent; the pulse more tense or hard, but commonly quick and small; though sometimes slow and seemingly regular for a time, and then fluttering and unequal. The head-ach, giddiness, nausea, and vomiting, are much more considerable, even from the very beginning. Sometimes a severe fixed pain is felt in one or both temples, or over one or both eye-brows, frequently in the bottom of the orbit of the eyes. The eyes always appear very full, heavy, yellowish, and very often a little inflamed. The countenance seems bloated and more dead-coloured than usual.

Commonly the temporal arteries throb much, and a *tinnitus aurium* is very troublesome. A strong vibration also of the carotid arteries comes on frequently in the advance of the fever, though the pulse at the wrist may be small, nay even slow. This is a certain sign of an impending delirium, and generally proceeds from some considerable obstruction in the brain.

The prostration of spirits, weakness and faintness, are very often surprisingly great and sudden, though no inordinate evacuation happens; and this too sometimes when the pulse seems tolerably strong. The respiration is most commonly laborious, and interrupted with a kind of sighing, or sobbing, and the breath is hot and offensive.

Few or none of these fevers are without a sort of a lumbago, or pain in the back and loins; always an universal weariness, or soreness, is felt, and often much pain in the limbs. Sometimes a great heat, load, and pain, affect the pit of the stomach, with perpetual vomiting of porraceous or black choler, and a most troublesome *singultus*; the matter discharged is frequently of a very nauseous smell.

The tongue, though only white at the beginning, grows daily more dark and dry; sometimes of a shining livid colour, with a kind of a dark bubble at the top; sometimes exceeding black; and so continues for many days together; nor is the tinge to be got off many times for several days, even after a favourable crisis. At the height of the disease it generally becomes very dry, stiff, and black, or of a dark pomegranate colour.—Hence the speech is very inarticulate, and scarce intelligible.

The thirst in the augment of the fever is commonly very great, sometimes unquenchable; and yet no kind of drink pleases, but all seems bitter and mawkish. At other times, however, one is amazed to find no thirst complained of, though the mouth and tongue are exceedingly foul and dry; this is always a dangerous symptom, and ends in phrenzy or coma.—The lips and teeth, especially near the state, are furred up with very black tenacious sordes.

At the onset of the fever the urine is often crude, pale, and vapid, but grows much higher coloured in the advance, and frequently resembles a strong *lixivium*, or citrine urine, tinged with a very small quantity of blood; it is without the least sediment, or even cloud, and so continues for many days together. By degrees it grows darker, like dead, strong, high-coloured beer, and smells very rank and offensive.—I have frequently seen the urine in petechial fevers almost black, and very fœtid; particularly that of one Mr. Shirley, a sea-surgeon, was almost quite black, with a sediment as dark as soot. He had abundance of very black spots, vibices, bloody dysentery, and comatose phrensy, and died about the thirteenth day.

The ſtools, eſpecially near the ſtate, or in the decline of the fever, are for the moſt part intolerably ſtinking, green, livid, or black, frequently with ſevere gripes and blood.—When they are more yellow or brown, the leſs danger; but the higheſt, when they run off inſenſibly, of whatever colour. It is likewiſe a very bad ſymptom when the belly continues hard, ſwoln, and tenſe, after profuſe ſtools; for this is generally the conſequence of an inflammation, or mortification of the inteſtines.—A gentle diarrhœa is often very beneficial, and ſometimes ſeems to be the only way nature takes to carry off the morbific matter.

When black, livid, dun, or greeniſh ſpots appear, no one doubts of the malignity; the more florid, however, the ſpots are, the leſs it is to be feared. It is a good ſign when the black or violet *petechiæ* become of a brighter colour.—The large black or livid ſpots are almoſt always attended with profuſe hæmorrhages.—The ſmall duſky brown ſpots, like freckles, are not much leſs dangerous than the livid and black; though fluxes of blood do but ſeldom accompany them. Exceſſively profuſe, cold, clammy ſweats, are often concomitant, by which alſo they ſometimes vaniſh, though without any advantage to the patient.—The eruption of the *petechiæ* is uncertain, ſometimes they appear the fourth or fifth day, ſometimes not till the eleventh, or even later.—The vibices, or large vivid or dark greeniſh marks, ſeldom appear till very near the fatal period.—We frequently meet with an efflorescence alſo, like the meaſles, in malignant fevers, but of a more dull and lurid hue, in which the ſkin, eſpecially on the breaſt, appears as it were marbled or variegated. This in general is an ill ſymptom, and I have often ſeen it attended with very fatal conſequences.

Sometimes about the eleventh or fourteenth day, on the coming on of profuſe ſweats, the *petechiæ* diſappear, and vaſt quantities of ſmall, white, miliary puſtules, break out. I have ſeldom ſeen this of very conſiderable advantage; but, if an itching, ſmarting, red raſh, it commonly greatly relieves the ſick; and ſo do the large, fretting, watery bladders, which many times riſe up on the back, breaſt, ſhoulders, &c. A ſcabby eruption likewiſe, about the lips and noſe, is certainly one of the ſalutary ſymptoms; and the more hot and angry, it is ſo much the better.—But of much more uncertain and dangerous event are the brown dark-coloured *aphthæ*; nor are thoſe that are exceeding white and thick, like lard, of a very promiſing aſpect. They are ſoon ſucceeded by great difficulty of ſwallowing, pain and ulceration of the *fauces*, *œſophagus*, &c. and with an inceſſant *ſingultus*. The whole *primæ viæ* become at laſt affected, a bloody dyſentery comes on, followed by ſphacelation of the inteſtines, as is evident from the black, ſanious, bloody ſtools, horribly fœtid, and extremely infectious.

Vibices, or large black and bluiſh marks reſembling bruiſes, are frequently ſeen towards the cloſe of the fever; and when attended with lividity and coldneſs of the extremities, are certain tokens of approaching death: I have ſeen the blackneſs reach almoſt to the very elbows, and the hands dead-cold for a day or two before the death of the patient. A remarkable inſtance of this kind I met with ſome years ſince in one Mrs. Hopkins, to whom I was called the ſeventh day of her illneſs. She was ſtupid and ſomewhat delirious, perpetually ſighing, as if under the extremity of grief, and complaining of infinite load and oppreſſion at her heart. She had a very quick, ſmall, trembling, unequal pulſe, and a ſhort, catching, laborious breathing; ſhe had no manner of ſleep for a long time, and yet lay very ſtupid. She had no great heat, though inſatiably thirſty; the tongue was not very dry, but blackiſh; her throat was ſomewhat ſore, and ſhe ſwallowed with difficulty; her eyes were ſtaring, fixed,

ed, and inflamed.—The eighth day she had exceeding profuse sweats, her tongue grew quite black, or rather livid, and extremely dry. In the evening the *catamenia* broke forth and became very immoderate (she was a nurse, and this was the first time they appeared since her delivery) the sweats continued, and were of very ill smell. The ninth they discovered *vibices*, or large black spots, on several parts of her body; one in particular on the top of her nose, and another on the bridge of it, which turned quite black, as did a large blotch on each cheek nearly of the breadth of a crown-piece.—The tenth the *catamenia* ceased, she fell into a violent purging, her belly swelled exceedingly, her nails and hands grew very black and as cold as marble, the urine and stool ran off involuntarily, she lay altogether insensible till the eleventh day, and then died. An intolerable stench arose from her at least forty hours before her death, though kept clean with all possible care.

I am very sensible, the word *malignant*, as applied to fevers, hath of late years fallen into very great disrepute, and probably it hath been often made use of to cover ignorance or magnify a cure. But there is really a foundation in nature for such an appellation, at least for some word, that may distinguish such a disease, as I have been now describing, from a common inflammatory fever; indeed the very term *inflammatory fever* supposes there are other kinds of fevers. It is perhaps indifferent whether you call them putrid, malignant, or pestilential. When *petechiæ* appear, every one calls them spotted or petechial, and if from contagion, contagious. I will contend with nobody about words, but it is necessary we should have some to communicate our ideas, and, where they are well defined, no one hath great reason to quarrel with them.

I have the utmost honour for the memory of the great Sydenham; and yet, I must say, had he not treated all fevers as merely inflammatory, even the plague itself, his practice had been more universally just and imitable, as being extremely well adapted to those who depend on an inflammatory lentor.—But surely it is not always to be followed, even in the small-pox, which in general he hath admirably well described and most judiciously treated. Without all doubt there are fevers, that require something more than the lancet, small-beer, and a purge. Is the low nervous fever to be treated so? Are some kinds of small-pox and petechial fevers, the miliary, &c. to be so managed? I appeal to all experieneed and rational practitioners. But honour to whom honour is due. He justly opposed and exploded the hot, sweating, fiery regimen, which was then commonly used in all kinds of inflammatory and ardent fevers. Yet mere evacuations, and cold watery diluters, will not indifferently suit all sorts of constitutions and fevers. But opposition is commonly carried too far, and a favourite notion may sometimes lead one to extinguish almost the vital flame, and another to fire the fabric, lest the deleterious *miasmata* should make a lodgement in it.

If a fever be an effort of nature to throw off some offending or morbid matter, as most certainly it is, surely it will not be always proper to check it. The hot fit of a tertian, by attenuating the lentor of the humours, and removing the obstructions in the extremities of the capillary arteries, terminates the paroxysm. Improper bleeding and purging often protract it greatly, and make it both anomalous and dangerous. When the contagion of the small-pox is received into the blood, it produces a fever, which in a mild kind of them soon ends in a complete eruption, and thence ceases; the fever, or the effort of nature, having expelled the morbific matter. But many times, from profuse evacuations, immoderate fear, sinking of the spirits, and improper management, she hath not sufficient

vigour to expel the diſeaſe by a proper criſis; but the puſtules are pale, wan, ſeſſile, and remain crude and without any regular maturation. And this often is the caſe in other eruptive fevers, even the plague itſelf.

The reaſon we have to bleed, therefore, in the beginning of ſuch fevers, is to prevent the fever from running too high, and producing inflammations of the brain, lungs, or other vital parts; which a great fulneſs of rich denſe blood, violently moved and heated, is very apt to bring on.—In truth, bleeding in a contagious diſeaſe, as ariſing merely from contagion, ſeems not indicated; becauſe the contagion is intimately mixed with the humours, and, by drawing off a ſmall part of the blood, you very little leſſen the whole contagion, which will have its effect, more or leſs, whether you bleed or bleed not. And we find, by the experiment of inoculation, that the leaſt quantity of the variolous matter, introduced into the blood, will produce the ſmall-pox: and we ſee the ſame in other caſes, whether the bite of a viper or mad dog; in the latter of which, by the bye, a ſmall wound is generally found worſe than a large lacerated one, becauſe this gives a more free vent again to the poiſon.

When you have intimately mixed any ferment with a liquor to be fermented, you cannot deſtroy the fermentation by drawing off part of the liquor; for every part of the liquor, when in fermentation, is a ferment. So contagion, received into the blood, operates on and in every part of it. By cooling, indeed, adding acids, &c. you may moderate the fermentation; and when it is too violent, you may prevent the ſplitting of the veſſel (if too full and cloſe ſhut) by giving proper vent. So in contagious fevers, by drawing off blood you may leſſen its quantity, and prevent it from over-diſtending, inflaming, and rending the veſſels, and leſſen the heat; which might otherwiſe very greatly augment the force of the contagion, and turn the whole maſs of humours into a mere inflammatory glew.—But if, to carry on the ſimile, you cool the fermenting liquor too much, and prematurely ſuppreſs the fermentation, you render the whole vapid and ropy, and it never puriſies itſelf by a proper deſpumation, or becomes a good vinous liquor. Thus when contagion is received, if you weaken the powers of nature too much by bleeding, &c. and hinder her operations in deſpumating (as Sydenham calls it) the morbid humours, you concentrate the diſeaſe, which turns the whole maſs of blood into a putrid ichor, or ſanies. However, as bleeding may leſſen the fewel, though it doth not extinguiſh the contagious fire, it is highly proper where there is a redundance of blood. But yet the infection will have its effect; and I have ſeen as numerous and as bad a kind of ſmall-pox, after profuſe bleeding, as ever I did when it had been omitted. It is certain, moreover, that the plague, which ſtands firſt in the liſt of contagious fevers, will very ſeldom bear bleeding, to any degree at leaſt, as appears from the very beſt authorities.

But let us finiſh this chapter with a few words on the curative intentions, proper in the fevers which it particularly treats of. And here firſt let me note, that though malignant and peſtilential fevers, at the very onſet, greatly ſink the ſpirits, and cauſe ſurpriſing and ſudden weakneſs, eſpecially when from contagion; yet bleeding to ſome degree is moſt commonly requiſite (nay, neceſſary in the ſtrong and plethoric) not only to leſſen the *maſs movendi*, and give a freer play to the oſcillating veſſels, but alſo to prevent any inflammatory obſtructions, which may form in the very beginning, and likewiſe to moderate the friction and heat, which are often very conſiderable for the firſt days of the diſorder, and which more and more exalt the ſalts and ſulphurs of the blood, increaſe the acrimony and putreſcent ſtate of the humours, and

greatly

greatly favour the action of the morbific matter. Thus, therefore, when indicated, ſhould be done as early as poſſible. A quick tenſe pulſe, ſharp heat, great difficulty of breathing, palpitation of the heart, and violent pain on the head and back, evidently demand it. But it ſhould be duly obſerved, that though a rigor precede the heat, and the oppreſſion on the *præcordia* be very conſiderable, yet much leſs blood ſhould be taken off than in a true peripneumony, which oftentimes makes its attack much in the ſame manner. But the ſudden weakneſs and great dejection of ſpirits, the trembling of the hands, the paleneſs and crudity of the urine, together with the abſence of a cough, and heat of the breath, which attend true peripneumonic fevers, diſtinguiſh the one from the other. Beſides, this affair is leſs liable to be miſtaken, when putrid, peſtilential, or petechial fevers are common, and the conſtitution of the air diſpoſeth to them. Whatever be the caſe, the blood drawn will ſoon ſhew the difference, which, in malignant fevers, is of a much more looſe contexture, and ſofter conſiſtence (though it may appear very florid) than that of pleuritics, or peripneumonics; which, though it may at the firſt bleeding appear very bright, and without a tough white pellicle on it, eſpecially if it trickles down the arm, and doth not run off in a full ſtream, yet when cold, it will form into a very firm and denſe *craſſamentum*. When you find it quite otherwiſe, be cautious, in all caſes, and not too prodigal of the vital fluid.

Now, though it may be neceſſary to bleed the ſtrong and robuſt at the very beginning of contagious fevers, yet we ſhould have a very careful regard to the nature of the fever, as ariſing from contagion, which ſeems to affect not only the blood, but primarily alſo the animal ſpirits. I think the ſudden damp, weakneſs, tremblings, and great dejection of ſpirits, at the very attack, evidently ſhew it. In ſome plagues, perſons have been ſtruck dead as with a blaſt of lightning, without any precedent fever, or even indiſpoſition. It is impoſſible to account for the immediate operation of the bite of a rattle-ſnake, which kills often in leſs than a minute or two, on any other ſuppoſition; nor for the ſurpriſingly ſudden effects of ſome ſmells on ſome perſons, which almoſt inſtantaneouſly throw the whole frame of nature into the utmoſt confuſion, and even convulſion. The now well-known effects of the ſtroke of electric effluvia, not only ſeem to confirm this notion, but alſo ſhew the analogous manner in which it is done. Whoever would ſee more of this, may conſult the illuſtrious Dr. Mead's Introduction to the third edition of his Eſſay on Poiſons.

But the nerves and animal ſpirits, being affected by the contagious *miaſmata*, do not ſufficiently and regularly actuate the muſcular fibres and veſſels; whence ariſes great debility, and too weak a vibration of the vaſcular ſyſtem; and hence the blood in ſome places runs into grumous concretions, and in others is quite diſſolved.—The heart and its auricles are found vaſtly diſtended with grumous blood in thoſe that die of the plague, the blood recoiling upon the heart, which hath not ſufficient power to protrude it. But yet the blood in the other veſſels appears vaſtly thin and diſſolved, inſomuch that it frequently runs off *qua data porta*.—Timoni,* and others, obſerve that it is exceedingly difficult to ſtanch it at the orifices made by bleeding and cupping. This I have likewiſe many times obſerved in common petechial and peſtilential fevers.

From the peculiar diſpoſition of the nervous filaments, and that of the moſt ſubtile and exalted part of the animal fluids, which ſo greatly differs in different perſons, ariſes that aſtoniſhing diverſity of affections, even from the very ſame cauſe. The ſmell of an herb, flower, muſk, that refreſhes

* See Philoſoph. Tranſact. No. 364.

freſhes thouſands, makes ſome particular people faint. The ſtroke of electric effluvia affects different perſons in a very different manner, at leaſt in very different degrees; probably not only from the different craſis of the animal ſpirits, but alſo from the different tenſion, ſtrength, &c. of the nervous *fibrillæ*; as muſical ſtrings, of different length and tenſion, will be very differently affected by the ſame note. It may perhaps, in part, be owing to the peculiar diſpoſition of the nerves and animal ſpirits, that ſome are very readily infected by the plague, ſmall-pox, &c. and ſome never, although multitudes ſuffer around them.

But be this as it will, the contagion certainly weakens the force of the ſolids, and tends to diſſolve the blood; ſo that, when we have a ſuſpicion that a fever ariſes from contagion, we ſhould proceed with caution in letting blood, even though the ſymptoms may run pretty high at the beginning, and ſeem to demand the taking off a pretty large quantity. In malignant pleuro-peripneumonies and peripneumonies, I have too often ſeen, and been ſorry for, very untoward miſtakes in this matter, particularly in the years 1740, 1741, and 1745. And therefore, though the firſt bleeding may be very proper, the ſubſequent may not be ſo, nay, pernicious.

The firſt blood generally appears florid; what is drawn twenty-four hours after, is commonly livid, black, and too thin; a third quantity livid, diſſolved, and ſanious. This is frequently the caſe in malignant petechial fevers. I have ſometimes obſerved the craſis of the blood ſo broken as to depoſit a black powder, like ſoot, at the bottom; the ſuperior part being either a livid gore, or a kind of dark green and exceedingly ſoft jelly. Beſides, the pulſe, in theſe caſes, ſinks oftentimes ſurpriſingly after a ſecond bleeding; nay, ſometimes after the firſt. And this I have more than once noted to my great concern and aſtoniſhment, and that even where I thought I had ſufficient indications from the pulſe, &c. to draw blood a ſecond time. So neceſſary is it therefore to have a due regard to the peculiar nature of an epidemic fever.

Scarce any infectious fever makes an attack on any perſon, without bringing on a ſickneſs at ſtomach and vomiting. As the morbific effluvia are ſwallowed with the *ſaliva*, &c. may they not, in part at leaſt, be waſhed off and rejected, by co-operating with nature, in promoting the vomiting?—By which alſo any bilious, acrid, putrid *colluvies*, that may lie in the ſtomach, is carried off; which otherwiſe, by growing more and more corrupt, would produce a variety of ill ſymptoms, and greatly encreaſe the original diſeaſe. Beſides, nature many times ſtrives in vain to diſcharge by vomit without the aſſiſtance of art, and yet as violently as when a proper emetic, and a proper waſh, are made uſe of. Nay, drinking ſomething to promote the vomiting makes it both eaſier and much more effectual, and by carrying off the irritating matter tends greatly to ſtop the vomiting. But then I would have this done always by very gentle means, ſuch as infuſion or decoction of *ipecacoanha*, *oxymel ſcilliticum*, with a ſlight infuſion of camomile flowers, or the like. The method of vomiting by mere warm water I do not approve of, as you are often obliged to ſwill down immenſe quantities before you can raiſe the vomiting, which ſometimes overloads the ſtomach to ſuch a degree, that its force is not ſufficient for the weight laid on it, and cannot reject it; ſo that the more you drink, the leſs capable it is of doing its office. And thus, being over-diſtended, it becomes quite inactive, whence dreadful effects may follow. In all caſes, therefore, if no vomiting follows after having drank a pint or two, ſollicit a diſcharge with your finger or a feather, and by all means beware of that deluge of drink which is too often

often very prepoſterouſly given. I think, by the way, the obſervation, that the ſtomach is utterly inactive, and cannot reject any thing when over-diſtended, juſt as the urinary bladder when over-full cannot render any urine, ſhews that vomiting is not ſolely from the action of the diaphragm and abdominal muſcles, as Monſ. Chirac and others ſuppoſe; for their utmoſt efforts many times produce no manner of effect on an over-full ſtomach or bladder. In the latter, we are frequently obliged to have recourſe to the catheter.

If the vomiting continues, after the ſtomach is waſhed out, give a little *theriaca Andromachi* out of an appropriate ſtomachic mixture, as ſalt of wormwood, juice of lemons, mint-water, &c. and apply an aromatic fotus, or rather a cataplaſm of *ſpecies aromaticæ* with *theriaca*, which moſt times ſucceeds when every thing elſe fails.

Not only the ſtomach, but the whole inteſtinal canal, ſhould be unloaded in the beginning of theſe fevers; but I am ſure reaſon and experience ſhew the neceſſity of doing it by very gentle methods; clyſters of milk, ſugar, and ſalt, laxatives of manna, cream of tartar, *ſal cathartic. glauberi*, tamarinds, and rhubarb, are what I would chiefly, if not only, adviſe. I have too often ſeen the very ill effects of acrid and ſtronger purgatives. *Hoffman cautions even againſt ſenna. The above ſoft eaſy emetics and eccoprotics, have this farther advantage, that they may be repeated, and given from time to time, as the putrid bilious *colluvies* drains into the firſt paſſages. By ſuch means I never fear to puke, or promote a ſtool or two, when indicated at any time of the fever by a nauſeous bitter taſte in the mouth, ſickneſs at ſtomach, nidoroſe and fœtid eructations, or by too great coſtiveneſs, tumid abdomen, borborygmi, griping pains, &c.

Though Hippocrates † adviſes in general againſt purging off the crude humours in the beginning of diſeaſes before they are concocted; yet he allows we may purge in the beginning, when there is a turgeſcence of the humours, and they make an effort to be diſcharged. Thus a *cholera morbus* is an effort of nature to throw off a ſuperabundant acrid bile. When putrid, malignant, autumnal fevers ariſe from a redundance of putreſcent aduſt choler, as the ancients called it, in the region of the liver, ſtomach, &c. (which is very often the caſe after hot ſummers have greatly increaſed and exalted the bile, animal ſalts, and oils) we ſhould certainly begin with ſuch gentle emetics and cathartics as I have mentioned.

Unqueſtionably the bilious principle is too greatly predominant in all putrid, malignant, and petechial fevers. The gall-bladder and biliary ducts are always found full of black or green bile in thoſe that die of peſtilential diſeaſes, and ſo is the ſtomach, *duodenum*, &c.* —Now if this putrid bile is not carried off, it grows more and more corrupt, and cauſes vaſt anxiety, ſickneſs at ſtomach, &c. and being re-abſorbed into the blood, creates infinite evils, greatly irritates the *genus nervoſum*, deſtroys the craſis of the blood, and turns the lymph into a corroſive ichor. Where, therefore, there are ſigns of its being redundant, it ſhould be forthwith diſcharged by vomit or ſtool, as nature points out. I have many times, with the greateſt pleaſure, in theſe putrid fevers, ſeen an amazing change for the better immediately ſucceed a fit of vomiting and a ſtool or two, where an inexpreſſible anxiety, load on the *præcordia*, perpetual ſickneſs, eructation, and *ſingultus*, had preceded. The extreme foulneſs of the tongue, ſickneſs, and load at ſtomach, with a loathſome bitter taſte, and horribly offenſive ſtinking breath and eructations, ſhew the condition of the ſtomach; and the abominably fœtid, black,

* De Febribus petechial. veris. Tom. IV.
† Aphor. 2. Sect. I. & Lib. de Humoribus.

* Traité de la peſte, &c. Paris 1744. 4to.

black, bilious ſtools, the neceſſity and advantage of that diſcharge. Surely, if a poiſon of any kind was lodged in the ſtomach or bowels, we ſhould not heſitate about the neceſſity of carrying it off as ſoon as poſſible; and truly putrid bile is little leſs pernicious than actual poiſon. Commonly about the ſtate of theſe fevers, or between the ſeventh and fourteenth day, nature of her own accord endeavours to relieve herſelf from the putrid bilious *colluvies* by vomit, or looſe ſtools more frequently; and her regular operations ſhould always be favoured by art. And accordingly I generally give a gentle laxative the eighth or ninth day, unleſs I find ſome eruption appearing, or a kindly ſweat forbid it. Till this time, I ſeldom uſe any kind of purgative except a little manna, cream of tartar, or the like, at the very beginning (eſpecially when I have reaſon to think the diſeaſe ariſes more from contagion than a putrid *ſaburra*) ordering, however, an emollient laxative clyſter every ſecond or third day, as there may be occaſion.—This laxative I repeat from time to time as ſymptoms indicate, and during the operation carefully ſupport my patient with proper cordial diet, drink, and medicine. By theſe means I not only prevent the congeſtion and encreaſing corruption of this putrid bilious matter in the firſt paſſages, but alſo its reabſorption into the blood; and likewiſe ſollicit a farther diſcharge of the morbid humours into the inteſtinal canal, and thence out of the body. This gentle method of purging about this time, in theſe fevers, I have for many years found of very great advantage; but I proteſt againſt the aloetic, ſcammoniate, coloquintida purgers, which in ſuch a putrid, diſſolved, acrimonious ſtate of the blood are poiſons, not medicines: and whoever uſes them in ſuch a caſe, ſhould have the guts of his brain purged, if he hath any there. Nature, indeed, without ſuch powerful ſtimulants, too frequently over-acts her part, and runs into a profuſe diarrhœa, a dyſentery, ſoon fatal if not reſtrained. But this moſt commonly happens from ſuffering the corrupt bilious matter to lodge, and putrefy too long a time in the bowels; and the beſt way to prevent it is to diſlodge it, at proper ſeaſons and due intervals.

When we are threatened with ſuch an immoderate diſcharge, we muſt have recourſe to proper aſtringent alexipharmics, theriaca Andromachi, confect. fracaſtor. tincture of roſes, red-wine mulled up with cinnamon, &c. But above all, if the caſe be very urgent, to an aſtringent clyſter of confect. fracaſt. or theriaca Andromachi, with a ſmall quantity of decoction of tormentil, red roſes, or Japan earth. But no ſmall degree of prudence is neceſſary in the uſe of it; for it is always of dangerous conſequence to ſuppreſs a critical diarrhœa prematurely; and I think it ſhould never be done without premiſing a ſmall doſe or two of rhubarb. Before I conclude this paragraph, I cannot but take notice, that though I have very often ſeen a diarrhœa critical and ſalutary at the ſtate or decline of theſe fevers, I generally find it prejudicial at the very beginning; eſpecially if very thin, ſerous, and profuſe. Nothing more certainly ſhews a diarrhœa to be uſeful, than when a gentle breathing ſweat, or warm moiſture of the ſkin, accompanies it.

Though nature very frequently affects to diſcharge the morbific matter in putrid malignant fevers by vomit and ſtool, yet her more conſtant and grand effort is through the pores of the ſkin. I ſolemnly aſſert, I never ſaw one of theſe fevers completely judged, or carried off, till more or leſs of a ſweat iſſued. If it proves moderate, warm, and equally diffuſed over the whole body, ſuch as we call a breathing ſweat; if it comes on about the ſtate of the diſeaſe, and the pulſe grows more open, ſoft, and calm a little before, and during its continuance, it is always ſalutary.

But

but if very profuse, cold, clammy, or partial, about the head and breast only, we have much more reason to fear than to hope from it. If profuse sweats break forth at the beginning, they are generally pernicious; especially if a rigor supervenes.

But as these sweats are always most favourable when they are more the work of nature than art, they should never be too soon or too forcibly driven out by violent hot medicines, regimen, &c.; it is sufficient to promote and support them by plentiful subacid diluents, and gentle cordial diaphoretics, such as may dilute and wash off the salts, contemperate the acrimony, and prevent the farther encrease of the putrescence and dissolution of the blood, and preserve and strengthen the tone of the solids.

But as persons of very different constitutions, both as to their solids and fluids, may be attacked by contagious diseases, very different methods of cure will be necessary in their respective cases: those of strong fibres and a rich dense blood, do not require such warm medicines as are necessary to support the feeble and phlegmatic. It should be observed in general, however, that as the blood and humours in pestilential and petechial fevers tend to dissolution, stagnation, and putrefaction, such methods as will preserve the contractile force of the vessels, and prevent the advance of putrefaction, are necessary: the vegetable, and even properly prepared mineral acids, are highly serviceable in the latter intention; and the subastringent alexipharmics are very useful in the former. But I am very certain that the use of volatile alcalious salts and spirits is very hurtful; as they, without all doubt, augment the putrescent state of the humours, and act as so many spurrers on to swifter destruction: a very large use of them, without the aid of contagion, being found to bring on a corruption and dissolution of the blood, and such kind of fevers, even in the most healthy. Perhaps the pestilential miasmata themselves are only highly volatilized and subtilized animal salts: the generation of pestilential fevers, by the putrid exhalations of dead bodies after battles, sieges, &c. seem to shew this.

What I have said of volatile alcalious salts, leads me to a reflection on the promiscuous use of blisters in these fevers; which, by some, are deemed the only anchor of hope in such dangerous cases: but I think they are many times too hastily and improperly applied, especially in the beginning, when the fever runs high, and doth not demand a farther stimulant; for the action of the cantharides is not merely on the skin, but affects the whole nervous and vascular system: now when the irritations and vibrations are already too great, as frequently happens in the beginning of such fevers, they are very injudiciously applied. Besides, the salts of these flies operate much in the same manner as the volatile alcali salts, and certainly tend to promote the dissolution, and consequently putrefaction, of the blood. It is true, indeed, nature may sometimes want a spur, nay, often doth so, particularly towards the decline of these fevers, when the solids grow torpid, the circulation languid, the spirits effœte, and the sick comatose: here blisters must be applied, and are of exceeding great use, at whatever time of the fever such a train of symtoms comes on. But, in the above circumstances, I have very many times seen very pernicious effects attend their too early application; as obstinate pervigilium, delirium, suppression of urine, tremors, subsultus, &c. I would therefore advise the young practitioners, before they deal largely in these wholesome severities, to consult *Baglivi de usu & abusu vesicantium*; and they will understand him much the better, if they previously read his treatise *de Fibra Motrice*, & *Bellini de Stimulus*. Let me farther add, that where several blisters are laid on in any acute case, the patient

ſhould drink freely of whey, emulſion, or ſome other ſubacid and demulcent liquor, otherwiſe he may ſuffer almoſt as much from the remedy as from the diſeaſe.

It may be expected I ſhould mention camphor as the grand corrector of the acrimony of cantharides; and in this view I frequently uſe it, well knowing that nothing more effectually blunts the ſpicula of ſalts than this exceeding fine, volatile, vegetable ſulphur; even thoſe of mercurial preparations are greatly ſoftened by it. But I think, in theſe putrid peſtilential fevers, it anſwers a much more important end by promoting a diaphoreſis, or eaſy ſweat, which is univerſally allowed, in ſuch caſes, of the higheſt ſervice; but nothing more certainly doth this than camphor, with this farther advantage, that it by no means heats ſo much as volatile alcalious ſalts, and ardent ſpirits. Beſides, its anodyne demulcent quality makes it vaſtly ſerviceable in quieting the erethiſm, and bringing on compoſure of ſpirits and eaſy ſleep, when opiates fail, nay, augment the tumult and hurry. Indeed, when joined with an opiate, it is the moſt certain ſudorific in nature; and the elixir aſthmaticum, or paregoricum, is not only in this reſpect, but in many others, a moſt noble medicine. But whenever opiates are given in theſe fevers, they ſhould be only in ſmall quantities at a doſe, which may be repeated, as indicated; theriaca Andromachi, Mithridate, diaſcordium, and elixir paregoricum, are, without all doubt, much the beſt. Camphor, however, hath this fault, that it is very diſagreeable to the ſtomach; but when diſſolved in (or rather intimately mixed with) hot vinegar, after the manner of the julep, e camphora, it ſits much eaſier, and is a medicine excellently well adapted to putrid malignant fevers, and even the plague itſelf: for both camphor and vinegar are highly recommended, by almoſt all phyſicians, in peſtilential diſeaſes. The French phyſicians made great uſe of both, with ſucceſs, in the late plague of Marſeilles, &c. and Heiniſius * had a ſtatue erected to his memory for the ſervice he did in the plague at Verona, by a medicine, the baſis of which was camphor.

Now, as we are obliged to give acids and ſubaſtringents in putrid malignant and petechial fevers, to preſerve the craſis of the blood and the tone of the veſſels, and prevent the farther putreſcence of the humours, diaphoretics (the chief of which is camphor) ſhould be joined with them, to keep up a free perſpiration, or gentle ſweat, which the former are apt to retard: this is quite conformable to the practice of the ancients, who mixed aſtringents with alexipharmics in the compoſition of their antidota, as may be ſeen in theriaca Andromachi, Mithridate, &c.—I am perſuaded they are better for it.—Theſe have ſtood the teſt of ages, and are unqueſtionably excellent medicines (when well uſed) though there may be ſeveral things in them trifling both as to quantity and quality. I very well know alum and nutmeg may be given with advantage in other fevers beſides intermittents, eſpecially when a little camphor and ſaffron are joined with them.

Here I beg leave to inſert the following preparation of the bark, which I have uſed for many years with ſucceſs, not only in intermitting and ſlow nervous fevers, but alſo in the putrid, peſtilential, and petechial, eſpecially in the decline; and that too, many times, though the remiſſions have been very obſcure, and yet with a very good effect. But, if the patient is coſtive, or hath a tenſe and turgid abdomen, I always premiſe a doſe of rhubarb, manna, or the like.

℞ *Cort. Peruv. opt. pulv.* ʒii.—
Flaved. Aurant. Hiſpal. ʒiſs. —
Rad. Serpent. Virgin. ʒiii. —
Croc. Anglic. ℈iv. — *Coccinel.*
℈ii — *Sp. Vini Gallici* ʒxx. —
f. Infuſio

* Vid. Etmuller. de Peſte, Tom. i. p. 263. edit. Francofurt. 1688. fol.

f. Infuſio clauſa per dies aliquot (tres ſaltem quatuorve) deinde coletur.

Of this I give from ʒi to ʒſs every fourth, ſixth, or eighth hour, with ten, fifteen, or twenty drops of elixir vitrioli out of any appropriate draught or diluted wine. This I order to be kept, in theſe parts, as an officinal medicine; and as a very uſeful one I recommend it to the trial of others. I very well know it will ſometimes ſucceed in intermittents, when the bark in ſubſtance or decoction will not eaſily ſit with the patients: and this is often an advantage of medicines given in a liquid form, which in a ſolid one proved diſagreeable; and therefore where it can be conveniently and effectually done, it ſhould be complied with. The above compoſition tends to ſtrengthen the ſolids, to prevent the farther diſſolution and corruption of the blood, and in the event to reſtore its craſis: and this it doth without ſhutting up the pores of the ſkin too much, which the bark in ſubſtance too frequently doth.—For it ſhould be noted, that though very profuſe ſweats in theſe (and all other fevers, I think) are prejudicial; yet gentle, eaſy, moderate ſweats, are always to be encouraged, particularly at the ſtate, and in the decline, by proper plentiful diluents, liquid aliment, &c. Indeed, as theſe fevers very often run out to a great length of time, ſupporting drinks and diet are neceſſary, without which the patients certainly ſink under them. In this view, and in thoſe above-mentioned, I cannot but recommend a generous red-wine, as a moſt noble, natural, ſubaſtringent cordial, and perhaps art can ſcarce ſupply a better. Of this I am confident, that ſometimes at the ſtate, and more frequently at the decline, of putrid malignant fevers, it is of the higheſt ſervice; eſpecially when acidulated with juice of Seville orange or lemon. It may be alſo impregnated with ſome aromatics, as cinnamon, Seville orange rind, red roſes, or the like, as may be indicated, and a few drops of elixir vitrioli may be added. I will not ſay, in the rant of Aſclepiades, * *Utilitatem vini æquari vix deorum potentia*; but it is undoubtedly of admirable uſe not only in common life, but as a medicine.—Rheniſh and French white-wines, diluted, make a moſt ſalutary drink in ſeveral kinds of fevers, and generous cyder is little inferior to either.—And, as I ſaid above, ſound, old, red-wine is a fine ſubaſtringent cordial julep. The Aſiaties, and other nations where peſtilential diſorders are more rife than with us, lay more ſtreſs on the juice of lemons in theſe fevers than on the moſt celebrated alexipharmic. It is not as to theſe only, but in many other things that we ſeek from art, what all-bountiful nature moſt readily and as effectually offers us, had we diligence and ſagacity enough to obſerve and make uſe of them. And I cannot but here take notice, that I think the dietetic part of medicines is not ſo much ſtudied as it deſerves. I am ſure it is the natural way of cure, though leſs pompous indeed than alexipharmic bolus, febrifuge draught, and cordial julep.

As I think the following diſſertations will more fully illuſtrate and confirm the preceding doctrine, I ſhall here ſubjoin them.

* Plinii Hiſtor. natural. ex Edit. Harduin. Pariſ. 1723, Folio, Tom. II. p. 301.

AN

ESSAY

ON THE

SMALL-POX.

THE different effects of the ſame diſeaſe, on different conſtitutions of the ſolids and fluids, is in no caſe more evident than in the ſmall-pox: for, firſt, when the variolous contagion attacks a perſon of ſtrong tenſe fibres, and a rich denſe blood, commonly a ſmart inflammatory fever enſues; in which ſometimes the lungs, ſometimes the brain, the throat, and other parts, are greatly inflamed, and on bleeding you have a very thick inflammatory blood; and you are many times obliged to bleed repeatedly, unleſs you will ſuffer your patient to be carried off by a raving phrenzy, or choaked by a peripneumonic inflammation. Here the pulſe is rapid, full, tenſe; the breathing hot, ſhort, and laborious; the heat very ſharp, and the urine high-coloured; the thirſt great; the tongue dry and foul; the pain of the head, back, loins, and limbs, exceedingly acute. Under ſuch ſymptoms I would bleed in a peſtilence, or indeed any other diſorder whatſoever, or elſe the utmoſt danger will ariſe from the inflammatory diatheſis of the blood, abſtracted from the contagion.

But I can by no means approve of the promiſcuous uſe of bleeding, ſo commonly practiſed in the ſmall-pox; for, 2dly, that diſeaſe many times comes on with the uſual ſymptoms of a ſlow nervous fever, and the ſick are frequently a long time drooping, as the vulgar call it; the fever low, the ſpirits ſunk, the pulſe weak, quick, and fluttering, the countenance pale and fallen, the urine crude and thin, no great thirſt, no great heat, a continual giddineſs and heavineſs of the head, with trembling, a perpetual nauſea and puking, univerſal uneaſineſs, wearineſs, &c. I have ſeveral times known ſymptoms of this kind continue for ſeven or eight days together, and at laſt end in the ſmall-pox; which almoſt always proved of a very bad ſort, pale, crude, pitted, and feeble, never riſing well, or maturating kindly, but continuing flat and flaccid, or running together in large watery bliſters, full of thin undigeſted ichor, and ſo remaining to the very laſt; whilſt in the face, from a deadly pale cadaverous hue, they turned to a ghaſtly black and very adheſive cruſt, if the patient ſurvived long enough, and even then generally proved fatal.

3dly, Sometimes the ſmall-pox are attended with a fever of the malignant or petechial kind, in which the craſis of the blood becomes quite diſſolved, black and livid ſpots appear, hæmorrhages enſue, and the puſtules turn black, gangrenous, and often bloody ſoon after the eruption, and that too ſometimes when the pox are very few and diſtinct. Here then we find three different kinds of fevers produced by one ſpecies of contagion, and we are obliged in the method of

cure

cure to have a regard to the particular fever, as well as to the peculiar nature of the contagious diſeaſe.

By this we ſee how abſurd the general notion of either the hot or cold regimen is in all kinds of the ſmall-pox indifferently. Sometimes Sydenham's method may be proper, ſometimes Morton's. In a word, the particular caſe requires a particular method, and the attending phyſician is to ſhew his judgement in adapting it rightly.

Though the contagion of the ſmall-pox produces the ſame ſpecific diſeaſe, yet the degrees of that diſeaſe are vaſtly different. Even the very ſame contagion, in the ſame houſe, family, or village, frequently produces very different kinds of pox; ſome exceedingly mild and diſtinct, ſome highly malignant and dangerous. We ſee innumerable inſtances where the firſt ſeized ſhall have a very favourable kind, the ſubſequent a confluent, malign, and fatal. This is every day's experience; and yet amidſt all this, and from the very worſt ſort, intermediate inſtances happen of the moſt benign. So that it is quite demonſtration, that the conſtitutions of the particular patients greatly diverſify the ſucceeding diſeaſe. And it is ſo in all caſes, for even a common ſcratch in one, rankles and proves a ſtubborn ulcer; in another a large lacerated wound heals up with little or no difficulty. A common phlegmon in one eaſily reſolves, or ſuppurates kindly; in another it proves gangrenous, ſcirrhous, or cancerous.

The contagion of the ſmall-pox doth not always bring on a fever, at leaſt to any conſiderable degree, though it may the ſmall-pox; for many children, and even grown perſons, have had them in the natural way, in ſo mild a manner, that they have had no perceptible fever, nor ſcarce ailed any thing previous to, or during the courſe of them. The variolous pus oftentimes infects the ſkin of thoſe that have had them already, producing a great number of puſtules, altogether ſimilar to thoſe of the ſmall-pox, of the ſame duration and manner in maturation, but without any fever. This is very common among thoſe that attend and handle perſons ill of that diſtemper, eſpecially thoſe who have fine and tender ſkins. Here the contagion affects the cutaneous glands, &c. only, and not the blood, which had ſuch an alteration made in it by the former ſmall-pox, as not to be ſuſceptive of it ever after. There are ſome peculiar conſtitutions, that will never receive this diſeaſe; for ſeveral perſons never have the ſmall-pox, though frequently converſing with, and even attending people in them. I knew an old nurſe, and one apothecary, who for many years attended perſons (and a great number too) in the ſmall-pox, and yet never had them. Nay, many that have induſtriouſly endeavoured to catch the infection, by frequenting the chambers of the ſick, have done it without effect; and yet ſome of theſe very perſons, ſome months or years after, have been ſeized with the ſmall-pox. The variolous pus, in inoculation, will not infect every one; and it is well known the pus, even from the ſame perſon, produces very different numbers of ſmall-pox in different perſons, and very different degrees of fever. Upon the whole, then, it is evident that the previous ſtate of the body, and diſpoſition of the humours, greatly contribute to determine the quantity and quality of the ſmall-pox. Not but that the contagious *miaſmata* may be of a much more virulent and active nature at one time than another, or during one conſtitution of the air than another; and indeed we actually find that it is ſo. But even this may be very much owing to that peculiar ſtate of the air, inducing ſuch or ſuch qualities into the ſolids and fluids, which render them liable to ſuch and ſuch peculiar fevers. For we find one

conſtitution

conſtitution of the atmoſphere diſpoſeth to inflammatory fevers, another to the ſlow nervous, remittents, intermittents, &c. and a third to the putrid, malignant, or petechial.—— Now where the contagion coincides and co-operates with ſuch or ſuch a conſtitution, it will be productive of ſuch or ſuch a kind of ſmall pox; or rather of ſuch or ſuch a kind of fever with the ſmall-pox. For ſurely we many times obſerve a very untoward fever to accompany the ſmall-pox, where very few, and very diſtinct, though of an ill kind. Indeed I think I have frequently obſerved the common epidemic fever manifeſtly concurring with the ſmall-pox, and that the variolous contagion only diverſified the diſeaſe; or rather the epidemic fever was coincident with the ſmall-pox on the ſame ſubject. This was the caſe very often in 1740, 1741, and 1745, when a violent epidemic fever, of the peſtilential kind, raged here, chiefly among the ſailors, ſoldiers and priſoners (eſpecially in the laſt of thoſe years) who had commonly the moſt evident ſymptoms of the malignant fever with the ſmall-pox, which therefore proved exceedingly fatal among them; whereas many perſons in the neighbourhood, that had no communication with the hoſpitals, and were otherwiſe tolerably healthy, had a very favourable kind. And probably this malignant fever was chiefly owing to the high ſcorbutic ill habit of body, manner of life, confinement, &c. to which the above ſet of people were ſubject. Though I think the fever* in 1740, was from another original.

It ſhould ſeem then, could we preſerve, or produce, a certain peculiar diſpoſition of the blood and humours, we might elude the force of the infection. And this indeed is talked of by ſome, but I think upon a very ſlight foundation. Some particular preparations of the bark and mercurials, by way of antidote, have been thought ſucceſsful, and I have known ſome inſtances that inclined me to think ſo; but I am far from being ſatisfied ſo far as to adviſe, or depend on them.

In truth, in different conſtitutions, the very ſame medicine ſhall have very different effects; and it would be madneſs to give the bark and cordial corroborants to one of very ſtrong rigid fibres, and a very denſe viſcid blood, by way of prophylactic, or preparative; though they might be of much ſervice in a weak lax ſtate of veſſels, and a poor watery blood.— Would mercurials be proper in a too looſely cohering diſſolving ſtate of the blood? Verily ſome bad effects have been ſometimes noted on the uſe of them, particularly petechiæ, hæmorrhages, and profuſe diarrhœas in the enſuing pox, though I am ſenſible, in other circumſtances, they may be very uſeful. In ſum, then, whatever can be done rationally in this way, muſt be with a view to mend what is faulty, or ſupply what is defective, in the conſtitution; ſo as either to fortify it againſt the attack of the diſeaſe, or to prepare it the better to cope with it, when it actually ſeizes. Perhaps theſe few hints may not be altogether unworthy the conſideration of thoſe eſpecially, who have the preparation and management of perſon to be inoculated.

I am perſuaded, if perſons, regularly prepared, were to receive the variolous contagion in the natural way, far the greater part would have them in a mild manner; for undoubtedly a very bad ſort of ſmall-pox many times ariſes from an over-fulneſs of blood, acrimony of homour, or great loads of foul matter in the firſt paſſages; and very frequently errors are committed in diet, exerciſe, &c. after the infection is firſt taken, which often prove of fatal conſequence in the event. From theſe, thoſe that are inoculated are and ſhould be guarded, and hence the great ſucceſs of that operation.

* Vid. hujus hiſtoriam, Obſ. noſtr. de Aere, &c. Vol. II. menſe Junio 1740.

operation. Not but that the mild kind, from whence the variolous pus is taken, and the very ſmall quantity of infectious matter received by inſition, in part alſo contributes to the mildneſs of the diſeaſe. This, perhaps, is the whole of inoculation, if you take in likewiſe this conſideration, that it is practiſed chiefly on the young, fearleſs, and moſt healthy.—Innumerable inſtances, however, have now ſufficiently evinced the great ſucceſs and advantage of this method; and, granting all that prejudice and party have ſaid againſt it, the danger in the natural way is at leaſt ten to one of what it is in this.

A particular regard then muſt be had to the conſtitution of the patient, and the conſtitution of the air, if we would practiſe with reaſon and ſucceſs in the ſmall-pox, and indeed in all other epidemic diſorders.

For, firſt, the robuſt and vigorous conſtitutions have more viſcid and denſe humours, and much more of the red, globular, compact blood, and of courſe are liable to a higher fever, and greater inflammation, than perſons of lax fibres, and a poor watery blood; and for this reaſon can bear better, in all caſes, evacuations, eſpecially by bleeding.

In the former then it is prudent, on the attack of the ſmall-pox, to draw off ſome blood, and if ſymptoms run high, to repeat it. A full, tenſe, throbbing pulſe, great heat, a difficult and hot reſpiration, high colour of the face, redneſs of eyes, phrenzy, &c. particularly demand it. An acute pain of the head, inflammation of the eyes, and throbbing of the carotid and temporal arteries, denote an inflammation of the brain, or its meninges, which you can never be too earneſt and early in endeavouring to remove. After having drawn a proper quantity of blood from the arm, bleeding in the foot hath generally an admirably good effect.

Bleeding in ſuch caſes doth not retard the eruption, at leaſt not beyond its due time. Where the blood and ſpirits are under a vaſt agitation, and the circulation exceſſively rapid, nature is ſo much embarraſſed, as to be unable to make a regular expulſion of the morbific matter, much leſs to concoct it, or even to perform the common natural ſecretions. In common ardent and inflammatory fevers, you are many times obliged to bleed once and again, before you can procure the leaſt ſweat. Beſides, ſome degree of coction is neceſſary in all critical eruptions, at leaſt in ſuch as prove ſalutary; and therefore you have generally more or leſs of a ſediment in the urine juſt before, or at the eruption, and the fever ſubſides.—Where all is in a hurry, and the pox are puſhed out too ſoon, frequently even within thirty hours, the fever continues, and the event is almoſt always fatal. Nor will bleeding, under the above circumſtances, weaken the powers of nature; but by calming the over-violent motion of the vital fluid, and cauſing a more regular ſecretion of the animal ſpirits, it will relieve, nay, ſupport her in her work.

Bleeding in the foot is known to make a very powerful revolution from the head and breaſt, parts we ſhould endeavour to guard, as much as poſſible, againſt the violence of this diſeaſe. And to this end, I would recommend alſo bathing the feet and legs in warm water, or milk and water, for a few minutes, two or three times a day, before, and at the eruption; and would likewiſe have cataplaſms of milk and bread, boiled turnips, or the like, applied to the feet. This practice I have for many years uſed with ſucceſs, and particularly recommended in a ſhort account of an anomalous ſmall-pox, that raged here in 1724 and 1725.* This draws the blood in greater quantities to the lower parts, and of courſe relieves the head and breaſt; and as it brings down more blood, it brings down alſo more of the variolous matter to thoſe parts, and, what is more, faci-

* Philoſoph. Tranſact. No. 390.

litates

litates its eruption on them, which leſſens the quantity that might otherwiſe break out about the head, &c. At the ſame time the relaxing quality of the tepid bath tends to calm the impetuoſity of the blood, and in ſome meaſure alſo dilutes it. It is certain; where this method is uſed, a vaſt many pox break out on the legs and feet, and ſometimes, on the application of the cataplaſms, very ſevere pains affect them. It is the number of puſtules about the head, throat and breaſt, that are ſo juſtly to be feared. A common eryſipelas of the face and head, is vaſtly more dangerous than on the inferior limbs. The head, therefore, ſhould never be kept too hot, but ſhould be ſhaved antecedent to the eruption, eſpecially where there is much hair; this not only keeps the head much cooler, and leſs liable to be over-run with puſtules, but likewiſe prevents many troubleſome accidents in the courſe of the diſeaſe.

If, notwithſtanding the fever continues to run high, the eruption doth not regularly advance, I would not only adviſe bathing the legs and feet, but the arms and hands; nay, and even the trunk of the body alſo.—This I have had occaſion to practiſe more than once in ſome children, who, from being uſed to the cold for ricketty diſorders, had their ſkin rendered more denſe and hard than natural, which probably retarded the eruption beyond the due ſeaſon. In one of theſe (now a ſtrong luſty gentleman) the pox did not appear till the ſixth day, though he had a very ſmart fever from the beginning; and then, on bathing him up to the breaſt in warm milk and water, the pox came out forthwith very kindly, though pretty numerous. Bathing the body in this manner not only tends to relieve the head and breaſt, but it alſo draws out the morbific matter, and promotes its eruption on the external habit, by which the internal and more vital parts are leſs liable to the ravage of the diſeaſe. It is too often found that the variolous puſtules on the lungs, viſcera of the abdomen, &c. produce mortal effects.—This is not altogether a new method, for Rhazes * adviſes the patient to be kept in a kind of *balneum vaporis*, to facilitate the eruption.

Many times the ſtrong and plethoric fall into a vaſt dejection of ſpirits, and a general debility, attended with a heavy oppreſſed pulſe, at the very ſeizure with the ſmall-pox, which makes the leſs experienced practitioner very diffident as to bleeding, though here equally neceſſary, and nothing ſooner relieves them, eſpecially when this, in great part, ariſes from fear and dread of the diſeaſe; which is very often the caſe with adult perſons, who, by the bye, can beſt bear bleeding, unleſs very old. For not only the contagion itſelf perhaps primarily affects the animal ſpirits, but the very fear and concern alſo ſo diſturb and weaken the powers of nature, that the heart and contractile veſſels exert much leſs force on the contained fluids, whence the regular ſecretions and excretions are conſiderably diminiſhed, particularly thoſe important ones, the nervous fluid and perſpiration. So that hence the *moles movenda* is encreaſed and the *vis motrix* leſſened. Drawing off part, therefore, of the encreaſed blood, under ſuch circumſtances, is in event equivalent to an encreaſe of the moving force. Beſides, when part of the viſcid humours is drawn off, the remaining are more eaſily attenuated, and rendered more fit to give off the actuating principles, or animal ſpirits, in due quantity. Some blood therefore, in ſuch caſes, ſhould be drawn as early as poſſible, but not in too large quantities at once. It is certainly better to repeat the bleeding, if neceſſary, at leaſt to ſtop the orifice now and then; for by this means you avoid the fainting, which otherwiſe frequently happens, unleſs the patient is bled in a recumbent, or lying poſture.

But farther, where immoderate fear

* Vid. Rhaz. de Variolis & Morbillis, Cap. vi. ex edit. Mead.

and

and dejection of ſpirits concur with the diſeaſe, there is really oftentimes a neceſſity of giving ſomething of a cordial nature, even at the very beginning, and that too ſometimes even not ſparingly. Now when the ſuperabundant quantity of the blood is drawn off, theſe invigorating medicines may be uſed with greater ſafety and advantage; and I have many times ſeen exceeding good effects from them, where the puſtules, through exceſſive fear, and oppreſſion of ſpirits of the patients, lay buried in the ſkin, as it were, and made no conſiderable advance for two or three days together. I am no great advocate for the hot regimen, eſpecially at the beginning of the ſmall-pox; but I know this muſt be done in ſuch caſes, bliſters muſt be applied to rouſe the sluggiſh oſcillations of the veſſels, or the patient certainly ſinks under the malady. Yet in general I am not fond of bliſtering very early in the ſmall-pox, unleſs there is great reaſon to fear that the tongue, fauces, and narine paſſages, are otherwiſe like to be greatly infeſted with them. When the diſeaſe attacks with a rawneſs, ſoreneſs, or great heat of the mouth and throat, and a conſiderable ſharp rheum, or ſtoppage in the noſtrils with frequent ſneezing, and a tickling cough, this is to be expected, unleſs prevented by timely bliſtering, which I have often found very ſucceſsful.—A great ſneezing and ſharp rheum from the mouth and noſtrils, ſhew that the *membrana ſchneideriana*, the common lining to all theſe paſſages, is greatly affected, and that a revulſion from it is indicated; for even a few puſtules in the throat and noſtrils are of vaſtly worſe conſequence than an hundred times the number on the external habit. Great pain and difficulty of breathing and ſwallowing are the certain effects, eſpecially towards the cloſe of the diſeaſe, which frequently quite choak the ſick, unleſs you are exceeding diligent with your gargles, ſyringing, &c. Sometimes I have known ſuch a violent defluxion on theſe parts, as to cauſe a very profuſe ſalivation even at the very beginning, which hath kept the patient conſtantly awake, excoriated the tongue, lips, and throat, brought on ſuch exceſſive pain as utterly to deprive them of ſleep, and make ſwallowing any drink, aliment, &c. almoſt intolerable. Here early bliſtering in the neck, behind the ears, &c. is indiſpenſably neceſſary.

But ſecondly, when perſons of weak lax fibres, and a poor thin blood, or thoſe who have undergone lately great evacuations, are attacked with the ſmall-pox, withhold your lancet, as you tender the life of your patients. Theſe generally have a ſunk pale countenance, a weak, quick, trembling pulſe, very great dejection of ſpirits, with a pale, crude, weyiſh, or limpid urine, alternate chills and heats, little thirſt, and no great pain, but a perpetual heavineſs and ſickneſs at ſtomach, giddineſs, &c. Here, I pronounce it, ſack and ſaffron are not improper, with more eaſy, cordial, nervous medicines, ſack whey, wine and water, or the like. But all this may be done without large doſes of volatile alcalious ſalts and ſpirits, ſnake-root, brandy, ſtrong wine, &c. And yet I have ſeen pretty large quantities of wine given in ſome low depreſſed caſes, with very great advantage. Bliſters alſo may be here applied, and ſtimulating cataplaſms to the feet. Bathing ſeems not ſo proper.

There is one thing in a peculiar manner that greatly promotes the variolous eruption in theſe low ſlow caſes, where the puſtules do not break forth in a regular manner at the uſual ſeaſon, but lie buried in the ſkin with little or no protuberance, and leſs colour; and that is vomiting by a gentle emetic. Nature almoſt always makes this effort ſpontaneouſly in this diſeaſe, and I think we ſhould follow the indication; for it not only in part throws off the morbific matter which primarily

rily affected the ſtomach, but alſo the heavy, putrid, bilious colluvies, that may have been collected in it, the liver, gall-bladder, &c. It is very notorious that the action of vomiting forces off through the ſkin, perſpiration, ſweat, puſtules.—I know it is objected, that vomiting drives up too much blood to the brain, and therefore is improper in the beginning of the ſmall-pox: and I think ſo too, if done antecedent to bleeding in plethoric conſtitutions. Nay, I have known very terrible accidents enſue, where thus injudiouſly managed. But let it be conſidered, that without the ſollicitation of art, nature is always at it, and makes almoſt perpetual, though many times vain, endeavours to diſcharge the ſtomach. Now it is certain, that by co-operating with her motions, and aſſiſting her effort with a proper waſh, we greatly help her attempt, and the vomiting even ceaſes much the ſooner; and it is obſervable, that, on the complete eruption, the vomiting goes quite off; but even that is by this means very much promoted. I would have the cataplaſms to the feet immediately ſucceed the emetic, for reaſons that are very obvious.

The emetic hath commonly the farther good effect of producing a ſtool or two, by which the inteſtines are unloaded of groſs indurated excrements, or any putrid bilious contents. If this doth not happen, an emolient laxative clyſter ſhould be forthwith given; and, in many caſes, a gentle, eaſy, cool cathartic of manna, cream of tartar, Glauber's ſalt, or rhubarb, is neceſſary; even if a diarrhœa is urgent, a doſe or two of rhubarb ſhould be given.

Different conſtitutions of the air have different effects on the moſt healthy, much more on the ſick and weak, and of courſe on diſeaſes.—It hath been long obſerved, that one conſtitution of the atmoſphere promotes, another retards, the progreſs of epidemic diſorders, particularly of the ſmall-pox, which at one time begin in the remoteſt corner of a town or city, and ſoon ravage the whole; at another they are carried into the very heart of them, and yet preſently ceaſe. The plague itſelf is commonly ſtopped by a change of air from hot and moiſt to cold and dry. The very ſtate of the blood greatly depends on the precedent and preſent conſtitution of the air, and it hath been proved, that the contagion hath different effects on different ſtates of the blood. A due conſideration, therefore, of the preſent and preceding conſtitution of the air, is of no ſmall import to our method of cure.

As a continual cold dry air makes the fibres ſtrong and very elaſtic, and the blood denſe and viſcid, one may reaſonably conclude, that patients, in ſuch a conſtitution, will, *cæteris paribus*, more need and better bear blood-letting, than in a warm, moiſt, relaxing ſtate of the air; and that they will want more of the diluting, emollient, antiphlogiſtic drink, diet, and medicines. Whereas, in the latter, ſomething more cordial, ſubaſtringent, and antiputreſcent, will be requiſite.

It is certain, in very cold and dry weather, as alſo when very hot and dry, perſons in the ſmall-pox ſpit vaſtly leſs than in the oppoſite conſtitutions of the air; ſo that, in a very dry atmoſphere, all proper means ſhould be uſed to dilute the humours, and promote ſalivation, ſo neceſſary and ſalutary in this diſeaſe. This however, in ſome ſeaſons and ſome perſons, is vaſtly too profuſe and prejudicial; I think more particularly in coldiſh, moiſt, ſlabby weather, and in perſons ſubject to catarrhal diſorders. I have many times known the ſalivation begin ſo ſoon, and continue ſo immoderate, as at length to abrade the common envelope of the tongue, mouth, and fauces, cauſing moſt exquiſite pain, preventing ſleep and ſwallowing, and keeping the patients in a perpetual torture. And therefore I always dread a premature ſalivation, eſpecially when profuſe and very acrid.

As ſome conſtitutions of the air hinder a ſufficient ſalivation, others diſpoſe to too much, and that too acrimonious: an epidemic catarrh ſhall at one time be only a diſcharge of a thin, ſoft, inſipid mucus; at another, a profuſe acrid gleet, excoriating the noſe, lips, fauces, &c. Probably ſuch a kind of atmoſphere as diſpoſes to exceſſive ſalivations, may in part alſo be productive of that crude, cryſtalline, undigeſted pox, which we too frequently meet with. For a moiſt, ſlabby, chill ſeaſon, not only too much relaxes the contractile veſſels, and impregnates the blood with the cold nitrous vapours, but withal greatly obſtructs perſpiration; whence a ſharp ſerous colluvies is accumulated; and it is chiefly in ſuch ſeaſons that this ſort of ſmall-pox is predominant; as the ſmall, warty, black kind, with little or no ſalivation, is moſt commonly obſerved during a long-continued courſe of dry north-eaſterly winds, very hot or very cold dry weather. Doth not this obſervation hint to us the different regimen neceſſary in different ſeaſons?

Theſe cryſtalline or lymphatic pox never maturate kindly, but the matter remains crude, and a mere watery ichor to the laſt; and in many places they run one into another, and form very large veſications, which at length breaking and corroding all around them, the patient is ulcerated all over, and appears like a flead rabbit. I have ſeen ſome running down under ſuch a kind of a tabes for twenty or thirty days together, the ſharp humours oozing out, and dripping from them continually, till at laſt they have been diſſolved in a double ſenſe. Very frequently a great part of this thin crude matter is re-abſorbed into the blood, and leaves a vaſt number of the puſtules flaccid, empty, or ſiliquoſe, as they call it. This creates terrible diſorders, and plays over the tragedy again, which generally ends in a fatal cataſtrophe; convulſive rigors, peripneumonic fever, delirium, dyſentery, ſyncope, &c. are the common conſequences. However, when it goes off by a moderate diarrhœa, or a very plentiful diſcharge of full-coloured ſubſiding urine, the ſick very often recover; but when the ſtools are black, bloody, or ſanious, they generally indicate a mortification of the inteſtines, eſpecially if the abdomen is ſwoln, painful, and tenſe. And a micturition, or perpetual urging to urine without any conſiderable diſcharge, is a very bad ſymptom, unleſs it ariſes from bliſters.—If ever large ſweats are uſeful in the ſmall-pox, it is in this kind of them; and I think I have found them ſeveral times greatly advantageous.

In this crude, ichoroſe, indigeſtible pox and profuſe ptyaliſm, where the ſkin and puſtules are pale or lurid, the pulſe weak, the urine thin, watery, crude, the warmer medicines are neceſſary; ſuch as pulv. contrayerv. c. myrrh, muſk, ſaffron, camphor, theriaca, mithridate, confectio cardiaca. Theſe are of vaſt ſervice in raiſing the puſtules and digeſting the matter, and may be waſhed down with ſack-whey, decoct. rubicund. a temperate teſtaceous julep, or a diſh of coffee now and then, with a little thin milk in it; which I have known, more than once, drank through the whole courſe of the ſmall-pox with no ill effect, nay, with a very good one; as it manifeſtly quieted the tickling vexatious cough cauſed by the ſharp thin rheum.

Here alſo, without doubt, opiates are ſtrongly indicated, and theriaca, elixir paregoricum, or tinctura thebaica, ſhould be given with diacodium frequently, but in ſuch doſes as to quiet, not to ſtupefy, the patient; which indeed is the moſt ſafe method of giving opiates in all ſorts of fevers, and ultimately the moſt effectual; for though a large doſe at once may more immediately procure ſleep, yet it is much leſs refreſhing; but, when it doth not, a delirium is almoſt always the certain conſequence, or a long continued ſtupor. In all events,

great doſes cauſe very great relaxation and univerſal debility, which nothing but a freſh doſe, after ſome time, or a warm cordial, will relieve: they are ſimilar in effect to large doſes of ſpirituous liquors, which produce temporary madneſs or ſtupefaction, ending in general weakneſs, tremors, and the utmoſt dejection of ſpirits. Beſides, no one can ſay what effect a particular doſe of opium will have on a particular perſon, till he hath tried it. Some have ſuch a peculiar diſpoſition, that a very ſmall doſe will greatly affect them; whereas others, of nearly the ſame apparent ſtrength, conſtitution, &c. will take four times the quantity with vaſtly leſs effect.—Some bear diacodium that cannot touch opium. So that it is always prudent to begin at leaſt with moderate opiates, and in ſmall doſes.

Yet notwithſtanding this caution, there are no medicines whatever that incraſſate thin acrid humours, abate their irritation and defluxion, and mature the puſtules ſo effectually, as opiates properly given. In truth, when the puſtules are numerous, we can do very little without them, eſpecially towards the ſtate of the diſeaſe, when they become exceedingly painful.—And yet even here, when the ſalivation is extremely viſcid and difficult, and the reſpiration ſhort and laborious, we ſhould be very cautious in uſing them, and join with them gum ammoniac, oxymel ſcilliticum, &c.

Nor muſt we, in this lymphatic or cryſtalline pox, be ſparing of bliſters, which, beſides their other good effects, give a copious vent to the acrid morbific humours; and for the ſame reaſon, the large bladders, which the puſtules cauſe by running together, ſhould be opened with a lancet,—Letting out the matter with a golden needle, as * Avicenna adviſes, is more nice than neceſſary. Do it as you will, a worſe cicatrix follows than when committed to nature.

* Avicenna Canon Medic. Lib. iv. Cap. de Variolis, p. 66. ex edit. Plempii.

But here the danger ſuperſedes that conſideration, for a mortification it ſometimes brought on by the corroſive matter, and ſome of it withal is continually re-abſorbed into the blood.

I would alſo adviſe ſome proper diuretics to be joined with the alexipharmac medicines, as nitre, ſal ſuccini, ſpirit nitri dulcis, and the like. For I have many times obſerved a plentiful flow of urine very happily compenſate the deficiency of other evacuations; and, if this happens when the ſalivation begins to ceaſe, and the face ſubſides, it is always ſalutary; and as it is ſo, it ſhould be promoted as much as poſſible; and the ſick ſhould be frequently prompted to diſcharge it, which is greatly facilitated by getting them upon their knees. For, whilſt lying in bed, they have many times neither inclination nor power to make it; and yet immediately on being lifted up, they ſhall render it in a large quantity.

Nothing is more common than for the thin, acrid, variolous matter, to take a turn down the inteſtines, and very often in a very violent manner. Innumerable inſtances have occurred in the ſmall-pox, where a critical diarrhœa hath ſaved the life of the patient; nature even ſubſtitutes this diſcharge in children, for the ſalivation in adults. We ſhould be very careful therefore, never to ſuppreſs it too haſtily; and even when it is profuſe, we ſhould not attempt it, till we have premiſed a doſe or two of rhubarb; and then, indeed, proper aſtringents, opiates, decoct. rubicund. decoct. fracaſt. tinct. roſ. &c. may be uſed; and when every thing elſe fails, a clyſter with diaſcordium, or theriaca, will ſtem the torrent. But in general we ſhould only moderate it, eſpecially at or after the ſtate, taking care, however, to ſupport the patient, during the flux, with a proper ſtrengthening ſubaſtringent diet.

I never obſerved either the vegetable or the mineral acids of any great

ſervice

ſervice in the crude cryſtalline pox; but I have often found them highly uſeful in the ſmall, black, confluent kind, with petechiæ; in which the putrefaction of the humours in general ſeems much greater, and the matter of the puſtules is vaſtly more fœtid and ſanious, than in the cryſtalline, the ichor of which many times hath little or no ſtench at all.—Though perhaps ſcarce one in four recovers from this ſmall, black, confluent kind (and when attended with black ſpots, bloody urine, and other hæmorrhages, ſcarce one of a thouſand) yet ſometimes great things have been done by mineral acids, aſtringent alexipharmics, and preparations of the cortex peruv: when the petechiæ have been numerous, and the ſmall-pox very black, ſmall, and confluent, nay, and even attended with ſome degree of hæmorrhage. I have known ſome inſtances of a recovery, under theſe circumſtances, by thoſe methods; but never met with one who ſurvived the diſeaſe, that made bloody urine, unleſs it was manifeſtly from cantharides. But as this kind of pox is of very long duration, and the patient (if he at length gets over it) continues between life and death, as it were, for many days together; the above medicines are not only neceſſary, but he ſhould be alſo plentifully ſupported, in the laſt ſtadium eſpecially, with proper analeptic and antiſeptic drinks and diet; till at laſt, like the ſerpent, (emblem of recovered health) he crawls out of the black exuviæ into new life and vigour: and truly I have ſeen ſome caſes, which ſeemed more like a reſurrection than a recovery.

When I recommend the uſe of the bark in ſome kinds of the ſmall-pox, I do it upon ſufficient experience and authority; whoever is not ſatisfied with mine, may conſult the great Dr. Mead,* Prof. Monro,† and Dr. Wall,‡ on this matter.—I commonly begin with the alexipharmic tincture of the bark above deſcribed, well acidulated with elixir of vitriol; and then proceed to the decoction, or extract, if neceſſary. But let me ſtrongly caution againſt giving any thing of this kind, where the reſpiration is difficult, the body very coſtive, and the abdomen hard and tumid, at leaſt till you have removed thoſe ſymptoms.—I muſt add, that the tinct. cort. alexipharm. is particularly ſerviceable in the lymphatic pox, and ſhould be given ſoon after the complete eruption, to promote, as much as poſſible, ſome degree of maturation. It is certain bark commonly brings on a laudable digeſtion in gleety ulcers. Morton* gave the bark, not only in the decline, but during the maturation of the pox, if he found any remiſſion; and that too every third or fourth hour, to the quantity of a drachm; and I know this hath been practiſed many years ago, with ſucceſs, by ſome other eminent phyſicians.

The great difficulty and danger of this diſeaſe, chiefly comes on at the ſtate, or turn of the pox (which happens much ſooner in ſome kinds than in others, the milder the pox, always the ſooner) for however eaſily matters may have proceeded till this time, we are now (viz. the ſeventh, ninth, or eleventh day from the eruption) very often ſurpriſed with a very ſhocking change, and terrible ſymptoms. The ſwelling of the face ſinks at once, the ſalivation ſuddenly ceaſes, the puſtules grow flaccid, the interſtices pale, lurid, or aſh-coloured; a rigor comes on, a fever ſucceeds, with great difficulty of breathing, faintneſs and ſickneſs; a perpetual anxiety, tremors, ſubſultus, delirium, &c. ſoon follow. Such a change is to be expected, if the puſtules break out very numerous the firſt, ſecond, or third day from the ſeizure; if after the complete eruption they do not fill well, keep up round, and properly pointed, but grow flat, and run abroad, or have a ſmall dimple or black ſpeck in the middle; if they are not ſurrounded with a florid baſe,

* De Variolis & Morbillis, p. 45.
† Medical Eſſays, Vol. V. p. 102.
‡ Philoſoph. Tranſact. No. 486.

* De Variolis, cap. ix. p. 250.

and

and look themſelves wan, or darkiſh coloured. If the urine withal hath continued, or grows pale, crude, and thin, and the carotid and temporal arteries throb much, no ſmall danger is impending. Here, then, the phyſician muſt in a more eſpecial manner watch his patient with the utmoſt diligence; for the affair of life and death is now to be tranſacted in a few hours: and though no abſolute rules can be well laid down in a diſeaſe that is attended with ſuch a great variety of accidents as the ſmall-pox, yet perhaps the following hints may not be altogether uſeleſs.

1ſt, If the ſwelling of the hands doth not regularly ſucceed the tumor of the face, and the ſwelling of the feet that of the hands, it is juſtly reckoned an ill ſymptom; for this is a regular and critical tranſlation of the morbid humours to thoſe parts, and commonly happens when the ſalivation begins to abate, and the face ſubſides.

Where, therefore, circumſtances are threatening, I would adviſe the application of epiſpaſtics to the wriſts and ancles, a little before we ſhould expect the tumour of the reſpective parts ſhould come on; for theſe not only more certainly draw the humours there, but alſo give them vent: and I think the uſe of emollient cataplaſms or fotus to the parts, ſhould for ſome time precede the bliſters, as they would alſo tend to ſollicit theſe critical tumors. Baglivi * ſays he ordered ſponges ſoaked in emollient decoctions with great ſucceſs. Sometimes indeed, nature, of her own accord, throws the morbid matter on the extremities with ſuch violence, as to create great inflammation, tumor, and moſt exquiſite pain, which nothing will ſo effectually relieve as emollient fomentations, by relaxing the parts, and opening the pores.

The foregoing method I recommended above twenty years ago †, and have ſince practiſed it in abundance of inſtances with great advantage.—The premature receſſion of critical tumors is always of very dangerous conſequence, witneſs even the common gout; inſomuch that we are many times obliged to fix it by acrid cataplaſms. In the above caſe, bliſters not only attract but diſcharge the morbific matter. I very frequently add cantharides to the cataplaſms; and I find it now a practice with ſome very great phyſicians to apply bliſters to the ſoles of the feet in caſes of danger.

2dly, If heat, head-ach, ſickneſs, and load at ſtomach, great reſtleſſneſs, or ſtupor, come on about the ſixth or eighth day from the eruption, the body being coſtive, as commonly it is, a plain clyſter of milk, ſugar, and ſalt, ſeldom fails of giving immediate relief: and this is eſpecially neceſſary when the ſick make frequent but vain efforts to ſtool. For the excrements, baked up by heat and long retention, are crowded into the *colon* and *rectum*, where preſſing on the bottom of the aorta, iliacs, and neck of the bladder, they hinder the free deſcent of the blood to the lower parts, whence the head and breaſt are over-loaded. Beſides, they ſuppreſs the urine, and neither wind, ſtool, nor water, can be diſcharged till the indurated excrements are ſoftened, and the guts relaxed, lubricated, and irritated to their office by a proper clyſter. Indeed I ſeldom ſuffer my patients, particularly young perſons, to grow ſo exceeding coſtive; for I generally order an emolient clyſter, if neceſſary, to be injected every ſecond, third, or fourth day from the beginning, till I enter on the uſe of gentle purgatives, which keeps the patient much cooler, and renders the uſe of anodynes much more ſafe and effectual: for very often they will have little or no effect till the body is unloaded, or bring on a comatoſe diſpoſition.

And yet, 3dly, Anodynes are almoſt always proper, nay neceſſary, in the ſmall-pox, eſpecially at and towards the criſis: were it for nothing but

* De variolis & morbillis.

† Philoſoph. Tranſact. No. 390.

but to assuage the pain from an inflammation of the skin and pustules, they would be required; for if one boil is attended with so much uneasiness, what will ten thousand occasion? However, the pain and soreness complained of is generally a good symptom. It is certainly a very bad one when neither the skin or pustules enflame or grow painful; for it argues a great deficiency of *vis vitæ*, want of a due circulation in the extreme capillaries, and an universal torpor. Let me farther add, that towards the state especially, the opiates should be given early in the evening, before the exacerbation comes on, and in larger doses; and if need be, oftener repeated. Diacodium here seldom proves sufficient, unless in children. The dose of the anodyne particularly should be always encreased the evening before we expect the crisis, in order to quiet the tumult, which generally comes on the ensuing night; for, as Hippocrates * observes, the night before the crisis, in all fevers, is most troublesome. When the patient is very feverish and hot, I find it best to give the opiate with some acid, or out of a saline draught; but, when low and languid, with thearica, or some alexipharmiac.

4thly, If at the approach of the secondary fever the pulse beats very quick, hard, and strong, the carotid arteries throb greatly, the heat grows intense, the breathing very difficult, and an acute pain of the head, or more or less of a phrensy, comes on, you are to bleed immediately, or in a very short time the case will be irrecoverable.—It is observable, that the blood drawn, under such circumstances, is extremely viscid, and as buffy as in the highest pleurisy: it is very evident that it is in a very inflammatory state, from the ophthalmies, quinsies, peripneumonies, rheumatisms, and external inflammations, which commonly succeed.

But, 5thly, If on the contrary the pulse flags, the patient faints, the pustules and the interstices grow pale, shrivelled, and sunk, or livid, the extremities coldish or clammy, you can scarce give too warm medicines, drinks, &c. nor apply too many blisters: I have seen very large quantities of warm wine given under such circumstances with surprising success.

6thly, About the close of the third stadium of the small-pox, the salivation commonly abates much, and the matter very often grows so exceeding thick and glutinous, that it is spit off with the utmost difficulty, and threatens suffocation every minute almost, unless perpetually deterged by proper gargles, syringing, &c. I know no gargles better in this case than cyder and honey, or vinegar, water, and honey, or oxymel scilliticum, with a little nitre or crude sal ammoniac. Mustard also may be boiled with advantage in the gargles, when a stronger stimulant is wanting. The vegetable acids are much more saponaceous and absterfive than spirit of vitriol, though more commonly used. Many times all these are ineffectual, and nothing but an actual vomit will relieve. Sydenham vomited in this case, with vinum benedictum to ʒiss. We have much milder, but equally efficacious; nay, oxymel scilliticum frequently given, many times succeeds, by gently puking, and easing both expectoration and respiration. Besides, it hath the farther advantage of promoting urine and stool, which are very often deficient at this time of the disease; but when the case is urgent, it should be quickened by a decoction, or infusion of ipecacoanha. I have had honesty and resolution enough to put this in practice several times, where this was the *derniere ressource*, and thereby have sometimes evidently snatched my patient from the jaws of death, though at the risque of my own reputation; but truly sometimes also I have lost both. But I shall ever be of Celsus's opinion, to try a doubtful remedy rather than none. It is not very uncommon to find the tongue and fauces covered

* Aphorism 13. sect. ii.

covered with a vaſtly thick, adheſive, whitiſh, or brown pellicle, ſo that they look as if they had been parboiled; and the œſophagus and aſpera arteria are commonly in the ſame condition: this neither vomit, gargle, nor aught elſe will remove; and is a very bad ſymptom, as it ſhews there is no manner of ſecretion through the glands of the parts.

The great tenacity of the mucus of the mouth, fauces, &c. many times ariſes from want of drinking freely, through the courſe of the diſtemper. But this is abſolutely neceſſary to dilute the blood, ſupport the ſalivation, fill the puſtules, waſh off the morbid acrid ſalts, and ſupply the veſſels with more wholeſome fluids; the very aliment in this diſeaſe ſhould be, nay, muſt be, chiefly liquid; as ſolids, for the moſt part, can be neither reliſhed nor ſwallowed. In the black confluent ſmall-pox, you muſt drink or die: thin acidulated whey, decoct. luſitan. gruel, or water with Rheniſh or ſmall French white-wine, cyder and water, or the like, are exceeding proper; and if either petechiæ or hæmorrhages appear, tincture of roſes, or claret and water well acidulated.

But, 7thly, When the incruſtation is perfectly formed, and the ſalivation abates, we muſt ſtudy to promote ſome other evacuations; for nothing now is to be farther thrown off on the external habit, little or nothing now can tranſpire through the cruſty ſcaly ſkin, which envelopes the body like a coat of mail, or rather, in its conſequences, like the poiſoned ſhirt of Hercules: for it not only vaſtly hinders perſpiration, but alſo confines the pus and ſanies, which grow every hour more and more putrid, and, being continually reſorbed into the blood, bring on, feed, and augment, the ſecondary fever.

If we can keep up the ſalivation, and promote a due flow of well-concocted urine, at this period, things go on tolerably well; but, very often, they both greatly fail all on a ſudden, and the patient falls into the utmoſt danger. Here all endeavours ſhould be uſed to renew theſe evacuations; more bliſters ſhould be forthwith laid on, and an emollient laxative clyſter immediately injected: expectorating mixtures likewiſe of oxymel ſcilliticum, lac ammoniac, &c. ſhould be frequently uſed.

Moreover, it is of no ſmall advantage at this time of the diſeaſe, to ſhift the linen of the ſick, which is now grown exceeding foul, ſtiff, and ſtinking, and become vaſtly uneaſy to them: beſides, it very much pollutes the air of the chamber, and renders it ſo very unfit for reſpiration, that even the moſt healthy can ſcarce bear it; nay, it not only hurts the breathing, but the miaſmata of this poiſonous mephites are continually paſſing into the blood again through the vaſa inhalantia, lungs, &c. and farther corrupt the blood. It is ſurpriſing to find how greatly the ſick are refreſhed on changing the air of the room, by prudently opening the windows and doors, and removing the ſtinking linen, &c.: they have new life, as they frequently and properly expreſs it; for freſh air is the breath of life. It is certainly of the higheſt ill conſequence to confine ſuch putrid air, and the ſick in it. The abſurd method of making a kind of hoſpital chamber in a houſe, and crowding up two, three, or more ſick in it, is a moſt dangerous practice, and I have often known it manifeſtly fatal: the ſtench, the groans, the cries of one, diſturb and offend the others; it is rare that they ſleep all together, but they are too often kept waking ſo: it is bad living by ſuch bad neighbours. Whatever may be pretended, there is no manner of danger in ſhifting the ſick, provided it can be carefully done, into very dry warm linen; but it is a filly notion to have the ſhirt or ſhift worn by another perſon for twelve or twenty-four hours before it is put on the ſick perſon. Can it not be made fully dry and warm without ſo doing? Will not the perſpiration,

or

or ſweat, of the moſt healthy, dirt and damp it?

But of this enough: I return to the affair of evacuation, and ſhall conclude this head with ſome obſervations on purging in the ſecondary fever of the ſmall-pox.

When the ſalivation proceeds regularly, the puſtules keep up and maturate kindly, the ſwellings of the face, hands, and feet, come on in due ſeaſon, and the patients ſleep quietly, and breathe freely, all things are well, and natute is moſt effectually doing her own work, and ſhould be properly ſupported in it, but never diſturbed. Here I even abſtain from clyſters, though the patient may have been coſtive for ſeveral days together, till after the complete incruſtation; and then they are proper to prepare for the ſucceeding purges, which without all doubt are then neceſſary.

But it very often, nay, almoſt always, happens, in the coherent and confluent pox, at, or before, this period, that more or leſs of a ſecondary fever comes on; partly from the reſorption of the matter of the external and internal puſtules, partly from the ſuppreſſed perſpiration, and partly from the putrid colluvies of the inteſtinal canal: which cannot but be very conſiderable, as undoubtedly part of the morbific matter, ſeparated by the glands of the mouth, fauces, &c. is ſwallowed, and a great deal more muſt be ſecreted by the glands of the guts, biliary ducts, &c. into the inteſtines: for, as vaſtly leſs than uſual now paſſes off through the ſkin, a much greater quantity of humours muſt fall on the bowels; it being a well-known maxim, that the leſſening of one evacuation is the encreaſe of another, and alſo that there is a peculiar conſent between the ſkin and the guts: to all this likewiſe is added the purulent matter of the variolous puſtules, that may happen to be in the ſtomach and inteſtines. So that there cannot but be a great lodgment of very putrid matter in the firſt paſſages, which grows the more and more virulent the longer it continues there, and is perpetually paſſing over again into the blood, through the abſorbing veſſels of the guts, and becomes a fuel to the fever, which nature endeavours, even this way, partly at leaſt, to throw off. Should it remain there then, or ſhould it be carried off? The anſwer is obvious. Nature, of her own accord, commonly attempts it with the greateſt advantage in the adults, and almoſt always in children, to whom a diarrhœa is a kind of ſuccedaneum to the ſalivation of elder perſons, Is not this then a ſufficient indication how to relieve her at ſuch a juncture? And in truth, what horribly fœtid, putrid, large ſtools, do we obſerve in this diſtemper, on the uſe of a clyſter, and more eſpecially after a purgative, I mean at the ſtate, or in the declination? Nay, this maſs of corruption lying long in the guts, and growing daily more putrid, becomes at laſt ſo extremely acrid as to corrode them; at leaſt ſo greatly irritates them, as to bring on that very diarrhœa, or dyſentery, which ſome ſo vainly fear will ariſe from a gentle cathartic.

But farther, if nature, neither by her own effort, nor the help of art, is capable of keeping the morbific humours from falling on the more vital parts, but, from an unfortunate tranſlation of it, is like to ſink under its weight (as upon a ſudden retroceſſion of the tumour of the face and hands, a premature ſuppreſſion of the ſalivation, or the like) doth it not ſeem neceſſary to carry off the offending matter by ſome other outlet, as particularly by the guts, which are much more eaſily and certainly ſollicited to a diſcharge than the pores of the ſkin, the urinary paſſages, or the ſalivary ducts? Indeed, when the ſalivation of courſe ceaſes, in my opinion, it ſeems proper to promote ſome other evacuation in its room; and if we uſe a clyſter, or a gentle purgative, we may readily reſtrain too great a diſcharge by an opiate.

It hath, and may be objected, to this practice, that it tends to draw the noxious humours from the external habit to the vitals. But to this I answer, that purging is more especially pleaded for, when the incrustation is formed, and the morbid matter concocted, at least as much as ever it will be; for a due concoction, or maturation, is never to be expected in the lymphatic kind; that it is particularly contended for when an unfavourable metastasis of the morbid matter hath already happened, and cannot well and readily be removed by other means; that this is substituted in the place of a suppressed critical evacuation, and that nature attempts, nay, ultimately requires, a discharge this way; that there is no other method of dislodging the putrid colluvies in the intestines, that feeds the secondary fever, but this; and that whenever there is a great quantity of foul corrupt matter in the first passages, of what kind soever, there is a consequent fever: witness verminious, capulary, bilious fevers, which cannot be carried off but by purging and vomiting; lastly, that every one allows the absolute necessity of purging at the close of the small-pox; otherwise boils, indurated glands, foul ulcers, carious bones, rotten lungs, or a consuming hectic, certainly succeed.

But when I recommend purging in the secondary fever of the small-pox, I would always advise to begin with the most lenient cool cathartics: the drastic, scammoniate, aloetic purgers, are certainly highly improper till the fever greatly abates; then indeed some stronger purgatives (to which I always join some calomel) should be used. The imprudent use of strong hot purges at the beginning, the not giving a proper anodyne after the purges, and the want of duly supporting the sick during the operation, have, I am persuaded, been frequently attended with ill consequences; but am very sure, that purging in the secondary fever, in the manner I have advised, is of great service, and I have seen very many instances of its great success.

A

DISSERTATION

ON

PLEURISIES AND PERIPNEUMONIES.

CHAP. I.

OF THE POWER OF THE WINDS AND SEASONS IN PRODUCING THESE DISTEMPERS.

AS pleuriſies and peripneumonies are, and always have been, ſo very common, Hippocrates hath ſaid much more upon them than on any other of the acute diſeaſes; and his obſervations are found moſt perfectly juſt, and will be ever highly worthy of a diligent peruſal by all phyſicians. One of them is, that cold north-eaſterly winds bring on diſorders of the breaſt, ſides and lungs;* and this hath been found conſtant and true by all his ſucceſſors. Not but that pleuriſies, and peripneumonies eſpecially, are frequently obſerved in other conſtitutions of the air, the latter very often ſupervening other acute fevers. Yet ſtill it is certain, theſe two diſeaſes are much more frequent, when a cold, dry ſeaſon, and northerly and eaſterly winds, have continued for any conſiderable time.

The obvious effects of dry cold winds on the human body are, conſtringing the whole external habit, making the ſkin more dry and corrugated, ſhutting up its pores, and leſſening perſpiration, at leaſt ſuffering only the thinner part of the humours to fly off. By a dry cold alſo the whole ſyſtem of the fibres is made more ſtrong, firm, and elaſtic, and the action of the veſſels on the contained fluids, more vigorous and forcible; whence a briſker circulation, more heat, ſpirit, and activity; by which the globules of the blood are rendered more denſe, compact, and numerous, and the whole maſs of humours diſpoſed to a greater degree of tenacity. It may be added, that as cold and dry air is almoſt always very heavy and elaſtic, by its greater preſſure on the body, it will co-operate with its cold and dry qualities, in producing greater effects. It is fact that, *cæteris paribus*, blood drawn, in ſuch prevailing conſtitutions of the atmoſphere, is conſtantly found more denſe and viſcid than in long moiſt warm ſeaſons; and that perſons ſubject to aſthmatic diſorders, ſuffer moſt during the continuance of north-eaſterly winds.

However, all theſe effects may conſiſt with high health, and commonly

* Aphoriſm. 5. Sect. iii.

do so; and therefore Celsus (though reckoning up the disorders produced by cold northerly winds) says * *sanum tamen corpus spissat, & mobilius atque expeditius reddit.*

But, alas! such is the frail estate of mortal man, that the transition from high health to great disease is most easy and exceeding common. For this high, rich, dense blood, agitated by strong and vigorous vessels, is extremely apt to be wrought up to such a degree of viscidity, as makes it unfit to pass the ultimate ramifications of the arteries; from which, obstructions and consequent inflammations most easily arise; especially on any excess in diet, or exercise, on obstructed perspiration, or any sudden alteration in the temperature of the air, which may rarefy the humours in general much more suddenly than it can relax many of the particular vessels. Whence, by the bye, those pains in limbs, formerly broken, in cicatrices of old wounds, in callous concretions on the toes, &c. (where the minute vessels have been rendered more straitened in their capacities, and more rigid in their coats) are observed to rage on sudden changes of weather into stormy, or wet and warm; which nothing so soon removes as an emollient fotus, by enlarging and softening the vessels.—Every old woman tells you to soak your corns, when they pain you.—And this method also is of very great service in those pains of the side, which often remain after pleurisies or pleuro-peripneumonies, for years together, and which are owing to a preternatural coarctation of the vessels by the past disease, and the adhesion of the lungs to the pleura. And which many times, on great rarefaction of the blood, changes of weather, &c. bring on the disorder afresh, and make the patient subject to frequent returns of it for ever after.

It is true, indeed, that persons of a very viscid state of blood and rigid fibres, are subject to inflammatory disorders of all kinds, in all seasons; but some constitutions of the air, however, are not only more apt to produce this inflammatory blood than others, but also dispose more to inflammations of particular parts. For when very cold air constringes the external habit, corrugates the skin, and shuts up the pores, more blood than ordinary is forced on the internal and more vital parts, particularly on the lungs; which, by the vast expanse of their internal surface (greatly exceeding that of the whole skin*) are designed by nature to assist the skin, in exhaling off the superfluous acrid and vapid humidity of the blood; and therefore, where the pores of the skin are in any degree shut up, the exhalation from the lungs should compensate the defect of the cuticular discharge. And we in fact find, that, immediately on taking cold, the lungs are more or less affected by cough, a large discharge of thin rheum, and very often in a much severer manner. But when the very cold air is likewise continually admitted into the lungs, it also corrugates their internal membrane, shuts up its excretory ducts, and so hinders a due exhalation, and expiration, if I may so say, of the surcharge from the retained *perspirabile*. It may be added, that the air, by its great degree of coldness and nearness to the blood in the pulmonary vesicles and cellules, is apt to congeal, at least greatly to condense it. There have been many instances, where extreme cold air hath caused an absolute and sudden stagnation of the blood in the lungs, and killed almost instantaneously. We find often that very cold winds so affect and contract even the skin of the hands, arms, and face, as to make it rough, cracked, and sore. Why may we not suppose it hath a similar effect on the more tender and delicate membrane of the trachea arteria, bronchia, &c.? In truth, the cough, hoarseness, and soreness, we commonly feel in breathing such

* Lib. II. Cap. I.

* See Dr. Hale's Vegetable Statics, p. 239.

a cold

a cold atmosphere, shew that it really hath so. The pharynx and larynx are very often so affected by severe cold winds, as to suffer violent inflammations, tumours, &c.

It is easy to conceive then, where a greater quantity than ordinary of dense sizy blood is thrown on the lungs, and where the vessels of the lungs themselves are inordinately constringed, and the excretory ducts and orifices of the glands of the wind-pipe, bronchia, &c. are considerably obstructed, that peripneumonic inflammations will be very readily generated.

But farther, a very viscid blood, (the natural consequence of a long, dry, cold constitution of the air) will not only dispose to inflammations in general, and to peripneumonic disorders in particular, but also to the pleuritic. For as the arteries, expanded on membranous parts, are extremely small, they are of course liable to be obstructed by a gross sizy blood: and hence rheumatisms are also very common in such seasons, the membranous parts of the muscles being inflamed by a viscid lentor. But the pleura is a membrane very largely extended, and spread over with an infinite number of very small arteries, ramifications of the intercostals, which arising nearly at right-angles from the aorta, by that means receive the more viscid part of the blood, as being the lighter (the heavier passing on nearer the axis of the great artery) and hence are exceeding subject to obstructions from an inflammatory lentor: and so are likewise the intercostal muscles, and periosteum of the ribs, which receive the blood, in part at least, from a like distribution of the arteries.

Hence pleurisies, as well as peripneumonies, are found exceeding common or epidemic, in very cold dry seasons; and in high cold situations, much exposed to north-easterly winds, they are commonly endemic. Indeed pleuretic disorders, properly so called, are apt to bring on the peripneumonic, and very frequently do so, for reasons which will be given hereafter. Hence it comes to pass, that we find many more pleurisies complicated with peripneumonic symptoms, than true and exquisite pleurisies; and this compound disease the moderns very properly call pleuro-peripneumony.

As these two diseases are so often conjoined, the ancients, as well as many of the moderns, have quite confounded them, ascribing the same symptoms both to one and the other indifferently; but there is a real difference certainly both as to the seat and symptoms of these two disorders. Indeed the ancients, as Cælius Aurelianus * informs us, were greatly divided in their opinion as to the seat of a pleurisy, some affirming it to be an affection or passion of the pleura, properly so called; others, of the lungs and its membranes. Both which opinions have had their respective abettors also among the moderns.—I flatter myself the following remarks will more fully explain their nature and method of cure.

CHAP. II.

Of the Peripneumony and Pleuro-peripneumony.

A Peripneumony, in the largest sense of the word, is a disease so common, either as an original malady, or consequent to some other, that its nature should be diligently studied by every physician; as it is a morbid affection of one of the principal organs of life, is very frequently attended with the utmost danger, and requires very different treatment in its different stages. Besides there are different degrees, I might say species, of this disease, which demand a particular attention, and a method of cure peculiarly adapted to each.

For a peripneumony, arising from a violent inflammation of the lungs, by a very sizy dense blood obstructing

* Lib. II. cap. xvi.

very

very many of the pulmonic and bronchial arteries, is a quite different diſeaſe, and requires a very different treatment from an obſtruction of the lungs by a heavy, viſcid, pituitous matter, as is the caſe in what late writers call a *peripneumonia notha*. And this again ſhould be managed in a method very different from that, which is proper in one depending on a thin acrid defluction on the lungs. And yet there are ſome general ſymptoms common to them all, particularly a load at the breaſt, a ſhort difficult breathing, a cough, and more or leſs of a fever; which few obvious ſymptoms, however, give the general denomination of a peripneumony, though in nature very different, and to be treated very differently. For in the firſt caſe, ſpeedy, large, and repeated bleeding is abſolutely neceſſary to leſſen the quantity and force of the too rapid blood, with the moſt cooling, relaxing, diluting Diet and medicines. In the ſecond, ſome blood indeed may be drawn off, at the very beginning, to prevent the farther impaction of the obſtructing lentor, and make room for proper inciding diluting attenuants; but if you are too buſy with your lancet, you weaken the patient, not the diſeaſe, which requires attenuants, detergents, expectorants, gentle pukes, and proper purges, with the free uſe of bliſters, which I think are quite naught in the former caſe, unleſs towards the cloſe of the diſeaſe, when they may be ſometimes neceſſary.—The third caſe may require bleeding alſo, to hinder the advance of the inflammation; but here the ſoft, lubricating, demulcent method, with ſome proper and frequent opiates in moderate doſes, are demanded, which in the ſecond caſe would be utterly deleterious.

Great regard muſt be had alſo to the different ſtages, even of the ſame kind of peripneumony, and the different ſymptoms that attend it. For though at the beginning of a ſevere inflammation of the lungs, large and repeated bleeding may be indiſpenſably neceſſary, yet if, after the ſecond or third bleeding, the patient begins to ſpit off freely a well-concocted matter tinged with blood, you are to reſtrain farther evacuation that way: otherwiſe you weaken your patient without neceſſity, and often entirely ſuppreſs the expectoration to his utter ruin. And yet if a conſiderable quantity of thin, florid, ſpumous blood is ſpit off, you ſhould draw more blood, quiet the cough with cool opiates, as diacodium, or the like, and give pretty freely of proper acids with ſoft cooling incraſſants. Whereas, if it is a thin, gleety, dark-coloured matter that is expectorated, it is generally a mark of great malignity, and that the blood is in a putrefying diſſolving ſtate, and will by no means bear a large emiſſion of blood. In ſhort, the diſeaſe is quite another thing when the inflammation is forming, from what it is when the obſtructing matter is concocted, or actually ſuppurated.

But to be more particular.—If a perſon juſt before in full health, ſhould on violent exerciſe, debauch, or a ſevere cold, be ſeized with a great ſhivering, ſucceeded by burning heat, very much oppreſſion and load at breaſt, with a very difficult, quick, hot reſpiration, and more or leſs of a cough, blood is to be drawn immediately, in a pretty large quantity from a large orifice. The ſtronger and more plethoric the patient, the larger the quantity, yet ſo as to ſtop on appearance of faintneſs, cold ſweat in the forehead or face, yawning, and the like, which may in a great meaſure many times be prevented, by bleeding the perſon in a recumbent poſture. In general, fat corpulent perſons do not bear bleeding as well as the lean and muſcular, as neither having ſo much of the red globular part of the blood, nor their veſſels ſo elaſtic. Beſides, the age and ſize of the perſon are to be conſidered, It would be abſurd to draw as much from a dwarf as a giant, though both

ſtrong

ſtrong in their kind; the very young and the very old are not the propereſt ſubjects for it, though both ſometimes require it.

Sanctorius obſerves, that antecedent to fevers the body grows more heavy, and of courſe more plethoric; and the rigors ſhew a viſcoſity in the blood, that ſtagnates in the extremities of the capillary arteries: it may be even ſeen in the nails, lips, &c. by their growing pale and livid: and this encreaſing lentor will of courſe leſſen perſpiration, and encreaſe the quantity of humours. Generally the more violent the rigor or horror is at the attack, the more violent is the ſucceeding fever; and this may in ſome meaſure alſo guide us in drawing off blood, as we muſt expect, on a violent and long-continued rigor, a high fever, and a very viſcid ſtate of the blood.

If the ſymptoms are not relieved by the firſt bleeding, after eight, ten, or twelve hours, more blood ſhould be drawn, nay, even ſooner, if they become more aggravated; and this muſt be repeated, if the fever, oppreſſion, anxiety, and difficulty of breathing, encreaſe, or continue equally ſevere; eſpecially if the blood drawn appears very firm and denſe, or covered over with a tough yellowiſh coat, or buff, as it is called: which, however, very frequently doth not appear till the ſecond or third bleeding, though the ſymptoms may indicate a very high inflammation. And this very often happens by the trickling of the blood down the arm, from a ſmall orifice, too ſtrait a bandage, or by the ſliding of the ſkin over the orifice; by any of which, the blood is hindered from ſpouting forth in a full ſtream.

This denſe buffy appearance of the blood, with a firm ſtrong pulſe, will warrant the drawing off blood, till the reſpiration at leaſt becomes more free and eaſy. But if the craſſamentum, or concrete maſs, is of a very looſe texture, and not covered with a ſizy coat or buff, and the pulſe ſeems to ſink, flutter, or grows more weak and ſmall on bleeding, it is time to deſiſt, and try other methods of relief. A thin bluiſh film on the blood, with a kind of ſoft greeniſh jelly immediately underneath (the cruor itſelf being livid, looſe, and ſoft, with a turbid reddiſh or green ſerum) is a ſign of a very lax craſis of blood, and great acrimony, which will not bear large quantities to be drawn off. Nay, even a very florid, thin, looſe blood, that gives off little or no ſerum after ſtanding ſome time, however ſpecious it may appear to unexperienced perſons, is far from being the good blood they imagine; but generally argues, in this diſeaſe eſpecially, a very conſiderable advance to a putrid and very acrid ſtate. For by mixing ſpirits of harts-horn or ſal ammoniae with blood from the moſt healthy, as it runs off, it always puts on ſuch a florid appearance, and gives off little or no ſerum, how long ſoever kept, but ſtill remains looſe, and, as it were, half fluid.—It is obſervable that ſpirits of harts-horn uſed frequently, and in large quantities, diſſolve the blood, and bring on profuſe hæmorrhages; which, I think, is an obſervation that ſhould be well conſidered by thoſe who take ſo frequently and freely of that ſpirit.

A ſtrong, throbbing, quick pulſe in peripneumonies, always indicates farther bleeding, at leaſt till ſome degree of eaſe in breathing, or a free expectoration of laudable matter, is obtained.—But it frequently happens that the pulſe, even at the very beginning, ſeems obſcure and oppreſſed, irregular, ſluggiſh, and ſometimes intermitting, the patient at the ſame time complaining of great weakneſs and oppreſſion, which would ſeem to contra-indicate bleeding; and yet the load at breaſt, difficulty of breathing, great anxiety, and heat felt about the præcordia, loudly demand it. This often puzzles the young practitioner. But he ſhould conſider, that ſuch a ſudden want of ſtrength, ſpirits, and pulſe, doth not ariſe from

want

want of blood, as the duration of the diſeaſe for a few hours, or a day or two, cannot be ſuppoſed to have exhauſted the vital liquid to any conſiderable degree. The truth is, not the defect, but the too great quantity of blood, in ſuch caſes, is the real cauſe of theſe ſymptoms. For the blood-veſſels being overloaded with humours, and diſtended beyond the due tone, cannot act with ſufficient vigor. The æquilibrium between the ſolids and fluids being not duly kept up, the moving veſſels are unable to protrude the blood with a due force; juſt as too great a weight on the embolus of a ſyringe, hinders its free play.—Hence, indeed, ſoon follows a deficiency of ſpirits, from want of a due circulation of the blood, and proper ſecretion of them; and hence a tendency to ſtagnation, concretion, and a large train of direful ſymptoms, and even death itſelf, unleſs timely prevented by ſufficient bleeding; which, by diminiſhing the too great quantity of blood, reſtores the æquilibrium between the ſolids and fluids, and a free action to the elaſtic muſcular canals, which now again exert more force on the contained humours, and carry on the circulation in a more regular and conſtant manner. All which tend to attenuate the too thick and viſcid blood, and render it more fit for the ſecretion of animal ſpirits, which may farther invigorate the action of the heart and veſſels. So that in ſuch caſes, letting of blood is ſo far from weakening, that it really raiſes the powers of nature; as is always evident on drawing blood from plethoric perſons, labouring under an oppreſſed pulſe, as it is properly called, which is found conſtantly to ariſe on bleeding.

In ſome very violent peripneumonies, where both the lobes of the lungs are greatly inflamed and obſtructed, an immediate and exceſſive weakneſs comes on, with an inexpreſſible anxiety, and oppreſſion at the breaſt, a very ſmall, weak, trembling pulſe, coldneſs of the extremities, with clammy, coldiſh, partial ſweats, the eyes ſtarting, fixed, and enflamed, the face bloated and almoſt livid; and all this ſoon followed with ſtupor, delirium, and I have ſeen in ſome caſes (though few indeed) with a complete paraplegia.

This is, in truth, a very dreadful caſe, but doth not ariſe from want of blood, but from want of a due circulation and diſtribution of it. For there being ſo many and great obſtructions in the branches of the pulmonic artery, the blood is ponded up in the lungs, and hindered from paſſing freely, as it ought, from the right ventricle of the heart to the left; ſo that the aorta and its branches, do not receive blood enough to carry on the common offices of life, on which ſoon follows an abſolute ſtagnation and immediate death. Diſſections have ſhewn this to be the caſe, the lungs having been found quite ſtuffed up with concreted blood, red, hard, and as it were fleſhy, or rather of the colour and conſiſtence of liver, and ſo heavy, that any part of them, cut off, ſunk in water.* If any thing can be done in this deplorable caſe, it is by early and immediate bleeding, or it becomes, in very few hours, utterly irrecoverable. I have ſeen ſome ſurpriſingly good effects from bleeding in both arms at once, when done in proper ſeaſon.

And yet there are ſome kinds of peripneumonies that will by no means bear large bleeding, as hath been noted by phyſicians of the beſt authority. And I have obſerved the ſame in ſeveral epidemic peripneumonies, particularly in the latter part of the year 1745, and the beginning of 1746†; during which we had an epidemic peripneumony, in which, after a ſecond bleeding (and even ſometimes after a ſingle bleeding) the pulſe and ſtrength of the patients ſunk to a ſurpriſing degree; and they

* Vid Hoffman. de Febribus pneumonicis Obſ. i.

† Vid. Obſ. noſtr. de Aere & Morb. epidem. Vol. II.

ran

ran into a sort of nervous fever with great tremors, *subsultus tendinum*, profuse sweats, or an atra-bilious diarrhœa, with a black tongue, coma, or delirium; though at the beginning the pulse seemed to be full and throbbing, and the pain, cough, and oppression so very urgent, as to indicate bleeding pretty strongly. Now in these cases, the blood was seldom found buffy to any considerable degree, but commonly very florid, but of a very loose and soft consistence, or very dark coloured, and coated with a very thin and bluish or greenish film, under which was a sort of greenish jelly, and a dark livid cruor at the bottom. Sometimes indeed the coat was much thicker and more tough, but of a pale red colour, resembling the cornelian stone, or dilute jelly of red currants. This last appearance I have frequently noted in real pleuro-peripneumonies. Whenever I see such a loose dissolved blood, I am very cautious how I advise farther bleeding, especially if I find the pulse or the patient become more languid after it, however the oppression, load, or even pain, may seem to require it. It was from observations of this kind that Lancisi, and Baglivi from him, caution against farther bleeding, when no fizy coat appears on the blood in the second bleeding: *in pleuritide, peripneumonia, &c. si in sanguine e vena secta extracto non appareat in superficie crusta alba, —pessimum;—si vero in altera sanguinis missione incipiat apparere, bonum: contra si in secunda ne quidem apparebit, abstincto statim a sanguinis missione, aliter interficies ægrotantem.** And I concur with Baglivi in the first part of the prognostic, as well as the last, having always found the very florid blood, drawn in the beginning of pulmonic fevers, of very ill omen; for it shews, that either the crasis of the blood is much broken and dissolved, or that the gross inflammatory blood sticks in the pulmonary arteries, and that nothing but the very thinnest and most serous part can transude and pass into the left ventricle of the heart.

I cannot but observe, however, that sometimes in peripneumonies and pleuro-peripneumonies, the first and even the second blood shall not appear buffy, and yet the third shall be very fizy, and this particularly if the blood trickles down the arm, and doth not come off in a full stream; but then it is ever to be observed, that this blood, though apparently florid, when cold is very dense and tenacious; whereas, in the case I mentioned above, the blood, though very florid, was of a very loose and soft contexture, and never formed into a regular firm crassamentum. Such a kind of loose, dissolved, florid blood, was frequently drawn from sea-faring persons in the beginning of the year 1746 †, and was always attended with very ill symptoms, very often fatal. Such malignant peripneumonies indeed very frequently happen to sailors after long voyages, and to persons very scorbutic. They grow first of all very short-breathed, listless, and faint on the least motion, and have transient erratic chills, heats, and pains all over their body; a fever succeeds, with a vast load on the præcordia, and a short, importunate, dry cough, a very quick, small, and much softer pulse than usual in true inflammatory peripneumonies, clammy unequal sweats, and a perpetual restlessness and anxiety; at last they begin to spit a thin, gleety, bloody, or very dark-coloured matter, frequently of a very offensive smell: moreover, these are not uncommonly attended with an eruption of red, brown, livid, or black, petechiæ. The urine is commonly of a blackish dull hue, or of a fiery lixivial colour, as if a small portion of blood was dissolved in it: this is rendered in small quantities, and without any manner of sediment; but the former hath sometimes a large livid hypostasis, sometimes nothing but a matter like coarse bran irregularly

* Cap. de Pleuritide.

† Vid. Obs. nostr. de Aere, &c. Vol. II. Mens. Jan. Febr. Martio.

larly ſcattered up and down it. As theſe ſymptoms are greatly argumentative of a broken craſis of blood, and high acrimony of the humours, large bleeding is not likely to be ſucceſsful, though too often imprudently uſed.

Though the appearance of a pretty thick ſizy coat on the blood is in general no ill ſymptom in pulmonic fevers, yet where it is exceſſively tough and extremely yellow, or of a pale lead colour, it threatens danger, and ſhews the inflammatory lentor is highly wrought up, and vaſtly difficult to be reſolved or attenuated, and that it will ſcarce admit of any commixture with any of the diluents that are taken in. This ſeems apparent from the odd ſhape the craſſamentum of the blood often puts on, of a globular, or rather a kind of an oblate ſpheroidal figure, after large and frequent bleeding in violent pleuritic or peripneumonic fevers; for then the cake of blood is found to ſwim in a great quantity of very thin, and ſometimes a quite limpid, ſerum; its greatly contracted concave ſurface, or coat, being almoſt as tough as leather, and the whole maſs nearly as hard and firm as a piece of fleſh. Now in this caſe, as a great deal of the globular part of the blood was drawn off by repeated bleeding, the craſſamentum is much leſſened in its quantity; but ſtill retains its greatly morbid viſcoſity, and its globules, being vaſtly denſe, attract one the other exceeding ſtrongly, as appears by the figure and conſiſtence of the craſſamentum, and tho' the proportion of the ſerum may have been greatly augmented by the uſe of plentiful diluents; yet it appears from the tenuity and limpidneſs thereof, that they have not been well mixed and united with the globular and ſulphureous or oily part of the blood. Nay, it is often obſerved, that thin, watery diluents are drank in large quantities, in theſe ſevere fevers, and rendered off by urine almoſt as limpid and inſipid as water*, or run off in vaſtly profuſe ſweats; not in the leaſt mixing, in a due manner, with the blood, properly ſo called, nor in the leaſt acting on the ſalts and ſulphurs thereof, their exceeding firm combination eluding the force of the diluters. I have repeatedly ſeen this in pleuro-peripneumonies, where the pain hath remained almoſt as violent as ever, after the fourth or fifth bleeding, and the globular part of the body hath been ſo reduced, as that the craſſamentum hath ſcarce been a ſixth part of the volume of the whole blood, and yet as ſolid as a piece of fleſh. Theſe caſes are generally mortal.

If after the ſecond or third bleeding, nay, if after the firſt, your patient begins to ſpit off freely a yellowiſh concocted matter, lightly tinged with blood, ſtop there, and particularly if the breathing becomes more free, as it commonly doth; otherwiſe you will weaken your patient to no purpoſe, nay, to a bad one, and quite ſuppreſs the expectoration, by which nature is now throwing off the diſeaſe by the moſt proper criſis, and ready outlet; the obſtructing matter in the extremities of the bronchial and pulmonic arteries being ſo far reſolved, concocted, or digeſted, as to paſs off freely into the cavities of the veſiculæ, bronchia, &c. and ſo up, and out of the trachea, by cough and expectoration: whence the extreme branches of theſe arteries become again paſſable, and the circulation through the lungs at laſt duly reſtored.

That there is a paſſage from the bronchial arteries into the cavities of the trachea and its ramifications is evident; for the oily mucus, which in a natural ſtate lines and lubricates the internal membrane of the aſperia arteria and its branches, is ſeparated from the bronchial arteries. And it

* Hippocrates obſerves that making water, immediately after drinking, is a dangerous ſymptom in pleuriſies and peripneumonies, Coac. Prænot. Sect. v. Ed. Lind.

s certain that water, serum, &c. pass reely from the pulmonary arteries nto the bronchial vesicular cavities; s appears from the experiments of Ruysch and the accurate Doctor Iales. Indeed, as the bronchial and ulmonic arteries, in their different unifications, join by innumerable naſtomoſes, even by this way the ulmonic arteries may have a comunication with the bronchia. Now, hen the obstructing matter is so duly ttenuated and concocted, and the essels so far dilated as to give a free assage, it is thrown into the cavities f the bronchia, and so out of the ngs by expectoration. It seems vident that the lateral, or serous ranches of those arteries, at their xtremities, are so far dilatable as in ome cases to pass red globules, and nat too freely, into the cavities of he bronchia; as is particularly seen n those spittings of blood, which re made *per diapedesin*, as Galen and ne ancients called it; for I think it s pretty certain, that some hæmopoes do not arise from a rupture of he vessels, as no manner of pain, urulence, or the like, precede, succeed, or accompany them.

But where these small vessels of the ngs are by nature or art made easily ilatable, they suffer less from inflamatory tentor, than where they are ery rigid and elastic; as commonly appens in the robust and laborious, who, according to the observation of Hippocrates, are most subject to, and uffer most from, inflammations of he breast and lungs.* And this indeed is confirmed by every day's experience; and so is likewise the following remark of the same great father of physic, relating to the laudable expectoration I mentioned above, ' Αἷμαλὶ δὲ ξυμμεμιγμένον μὴ πολλῷ πτύελον ζιθὸν, ἐν τοῖσι περιπλευμονικοῖσιν, ' ἐν ἀρχῇ μὲν τῆς νόσε, πλυομενον περιεσκὸν † κ) κάρλα ὠφελέι'' : Hippoc. Prognost. And indeed it hath been the observation of the very nurses in some epidemic pleuropneumonies, and peripneumonies, that all those who spit blood do well. However this is very far from being always true, unless the matter is conditioned as above: for whenever either very frothy, or sincere florid blood is spit up, or black and partly coagulated, spongy, liver-coloured blood, it is quite otherwise; as it shews that there is nothing like resolution, or digesting of the obstructing matter performed; but that the obstruction being deeply radicated, and the impelling force of the heart vehement, some vessels are burst open, and an extravasation of blood made into the cavities of the lungs, and so spit up. For when great obstructions are formed in some parts of the lungs, the blood must be forced in greater quantities, and with greater rapidity, through the vessels that are pervious; which hence, being over distended, frequently break, and the blood gushes into the cavities of the bronchia, and many times in the inmost recesses of the vesicular cells. What of this blood is spit off immediately appears florid and frothy, and does no farther damage; but the chief misfortune is, that a great part of it remains commonly in the lungs, and stuffs up the air-bladders, and compresses and obstructs their blood-vessels; which very much encreases the difficulty of breathing, and greatly hinders the circulation of the blood through the lungs. Besides as it is exceeding difficult to be pumped up from these minute vesicular cells, by continuing there it grows more and more putrid, till at length it becomes a corrosive sanies, that destroys the very substance of the lungs: but of this more hereafter.

As all the inflammations of the lungs will either quickly choak the patients by hindering the passage of the blood thro' them, or terminate in suppuration, gangrene, or scirrhosity, if the obstructing matter is not soon kindly resolved, or digested; we should be as early as possible in our endeavours

* Coac. Prænot. 29. Lib. II. Cap. xvi. De Pleuritide, Edit. Dureti.

† So I chuse to read with Foesius rather than περισκλικὸν as more agreeable to the sense, and the Hippocratic diction.

vours to abate, and take off the inflammation by bleeding in due quantities: for when once an abſceſs is actually forming, bleeding can be of no farther ſervice. Nay, when once the plegmon is too far advanced to be reſolved, bleeding is really diſadvantageous, as retarding the next operation of nature, to free herſelf from the offending obſtructing matter, by a kindly ſuppuration: for by this means the matter is made to ſtagnate longer, and ſo grows more and more acrimonious; which at length, by affecting the adjacent parts, forms a much larger impoſthume than would have happened at firſt, if nature had been left to her own proceedings; nay, many times it ends in a downright gangrene, and ſometimes in an obſtinate ſcirrhoſity, making the ſhort remains of life extremely miſerable.

Phyſicians note in general, that, after the fourth or fifth day of a true peripneumony, bleeding is of little avail to prevent the ſuppuration; for moſt phlegmons begin to ſuppurate in that time, if not reſolved before: this will more eſpecially and ſooner happen in ſuch a part as the lungs, ſurrounded on all ſides by warmth and moiſture, and ſo near the heart acting on the inflammatory obſtruction with conſtant and great force. So that where the peripneumonic ſymptoms continue with great violence for four or five days or more ſucceſſively, an abſceſs or mortification is juſtly to be feared, and little advantage is to be expected from farther bleeding.

But yet, if either the pain returns with violence after having ceaſed a conſiderable time, or ſeizes another part of the breaſt, it is an argument that a new inflammation is forming, which indicates bleeding as much as the primary, though not to the ſame degree: for this acceſſary ſeizure being altogether of the ſame nature, and on the ſame organ as the former, requires the ſame method to prevent its advance and farther ill conſequences. The ſtrength of the patient, and pulſe, the violence of the pain, and difficulty of reſpiration, are in a great meaſure to determine the quantity; and ſome regard muſt be had alſo to the colour and conſiſtence of the blood, and the quantity and quality of the ſerum. I have ſometimes ordered bleeding the ninth or tenth day from the firſt attack, and found the blood almoſt as fizy as what was drawn the ſecond or third, and that too where the lancet had not been timorouſly uſed; but the craſſamentum, tho' exceeding tough, was greatly reduced in the proportion it bore to the ſerum.

It is commonly obſerved, that as ſoon as this ſecondary attack and pain come on, with any degree of violence, the expectoration, though before free and copious, ceaſes altogether, or is performed with very great difficulty; the violence of the pain not ſuffering the thorax to be duly expanded, and the muſcles of the lungs, breaſt, and abdomen to act with ſufficient force to eject the matter: not to mention that the inflammation hinders a due ſecretion of the lubricating mucus, which ſhould naturally be ſeparated to ſmooth over the internal membrane of the trachea and bronchia, and expedite the diſcharge of any matter contained in them.—And we eventually find that after the inflammation is abated by bleeding, the expectoration returns with eaſe and freedom.

So that though in peripneumonies and pleuro-peripneumonies you are chiefly to make your evacuations by bleeding before the fifth day; yet on freſh attacks of violent pain, difficult reſpiration and ſuppreſſed expectoration, you are to begin again, as it were, a-new*, but with great caution and moderation: as all relapſes, in theſe caſes eſpecially, are dangerous, the ſick growing daily weaker and leſs capable of bearing any conſiderable loſs of blood. And therefore it will be very imprudent, upon every little

* Hippocrates bled Anaxion the eighth day, becauſe the pains continued, and he did not expectorate. Lib. III. Epid.

pain,

pain, to have recourſe to bleeding; for more or leſs pain continues, particularly after pleuro-peripneumonies, very often a long time after the fever is quite gone off: *Debet prius ceſſare febris, & poſtea dolor affecti lateris*, ſays Baglivi.—But bleeding is, in a peculiar manner, leſs proper where a copious expectoration of laudable matter goes on pretty eaſily, though it ſhould ſtill continue tinged with blood, for the reaſon I hinted above, viz. that it indicates the reſolution and concoction of the matter of the new inflammation. Nay, it is for that very reaſon to be avoided, though often imprudently ordered, and aſtringents ſtupidly adminiſtered, to reſtrain this ſlight tinge of blood: but it is by perſons who have very little attended to nature's operations, and leſs to Hippocrates, her great interpreter.—It is without all doubt vaſtly more proper to alleviate the pain and importunity of the cough by gentle opiates, cooling ſoft demulcents, and eaſy expectorants.

I have only two things more to add on the article of bleeding in pulmonic diſorders. The firſt is, that bleeding in the ſaphæna, or foot, is much leſs practiſed in ſuch caſes than might be expected from the reaſon of things, and the certain experience of its great efficacy in ſpitting blood from the lungs; I mean, after ſome proper quantity of blood may have been drawn from the arm. Alexander the Trallian,* many centuries ſince, adviſed it as very uſeful in that caſe. The ſecond is, that where the pulſe and ſtrength of the patient ſeem not to favour blood-letting from a large vein, and yet the oppreſſive, laborious, painful cough, and ſuffocation, remain very urgent, drawing off blood by cupping on the ſhoulders, &c. may be done with ſafety, and frequently gives exceeding great relief in diſorders of the breaſt, as well as of the head, though the reaſons may not be ſo very obvious and aſſignable. However, it muſt be conſidered, that the greater part of the blood drawn this way is arterial blood; and that the uſe of bliſters, iſſues, ſetons, and even cupping, on thoſe parts, is very notorious in aſthmatic coughs, defluxions on the lungs, &c.; and ſeems to ſhew that revulſions and evacuations made this way may be very ſerviceable in inflammations of the lungs, and in event they are ſo.

Although bleeding in all inflammations of the lungs is indiſpenſably neceſſary in ſome degree, and ſometimes, when well timed and executed, quite curative; yet in general there are ſeveral other indications to be anſwered: for both the fever and the particular inflammation require a cool diluting regimen, and nitrous and relaxing medicines, together with a moderately cool air, and as much quiet as poſſible both of body and mind. It avails little to draw off ſome of the ſizy, obſtructing, inflammatory blood, if the remainder is not cooled, diluted, and thinned, and a farther generation of the inflammatory lentor prevented by nitrous attenuants, cool ſaponaceous medicines, diluting, relaxing, emollient drinks, emulſions, &c. which a hot regimen, hot medicines, hot air, much motion of body, and agitation of mind, tend greatly to encreaſe. Perſons in aſthmatic paroxyſms are under a neceſſity of keeping a quiet poſture, and of breathing cool air, or they are in immediate danger of ſuffocation; how much more ſo then are theſe neceſſary, where there is not only a great obſtruction in the veſſels of the lungs, but alſo an inflammation in their very ſubſtance? A cloſe, narrow, ſtifling room, is exceedingly incommodious to any perſon ſick of a fever, but much more ſo to thoſe ill of a peripneumony, as I have many times obſerved, eſpecially among the lower part of tradeſmen, when two or three families perhaps live in a houſe together. Celſus's advice is never more proper, nay, neceſſary,

* Cap. vii. p. 94. Ex Edit. Rob. Stephan. Lutetiæ, 1548. fol.

neceſſary, in any kind of fever than in the peripneumonic, *in amplo conclavi tenendus æger.** If ſuch cloſe rooms cannot be avoided, they certainly ſhould be frequently, but prudently, aired.

Few or no peripneumonies, or pleuro-peripneumonies, end well without a free and copious expectoration; for this is the natural criſis of theſe diſorders, as hath been noted by Hippocrates, and all judicious phyſicians, and the want of ſpitting off the morbid obſtructing matter in a due manner reckoned extremely dangerous, Αἱ ξηραὶ τῶν Πλευριτίδων ἄπνυσοι χαλεπώταται.†—And again in the Prognoſtic ‖ he ſays, it is a very bad ſymptom when μηδὲν ἀνακαθαίρηται—ἀλλὰ καλῆς ἐὼν ζέῃ ἐν τῷ φάρυγγι—The more eaſy, early, and large, the concocted expectoration is, ſo much the better. Indeed generally at the beginning it is crude and thin, but ſoon becomes of a whitiſh yellow colour and greater conſiſtence, when matters proceed rightly; and about the third day it is commonly ſtreaked with blood, or the blood is ſo incorporated with it as to give it a bloody tinge, *flavorubeſcens*, as Baglivi ‡ calls it, or, in the Hippocratic phraſe, Πτύελον ὑφαιμον. This kind of matter, when freely ſpit off, gives great relief to the reſpiration, pain, and oppreſſion at the breaſt, and generally terminates the diſeaſe in ſeven days.

But nothing more effectually promotes expectoration (by attenuating and reſolving the impacted matter) than drinking freely and frequently of cooling, relaxing, and gentle ſaponaceous diluents; ſuch as thin whey, the barley ptiſan with liquorice, figs, &c. the decoction or rather infuſion of the pectoral herbs, as ground-ivy, maiden-hair, colts-foot, hyſſop, &c. Theſe ſhould be gently acidulated with juice of lemon or Seville-orange: if any thing more detergent is wanting to the above drinks, honey may be added: an admirable, natural, cordial ſapo, thrown almoſt out of the *materia medica*, I know not why, nor how; for where it gripes or purges one, it agrees with a thouſand; and even its griping and purging quality may be eaſily corrected by boiling. Hippocrates uſed oxymel and mulſum in ſuch caſes, and adviſes againſt drinking mere water in pulmonic fevers, as neither good for the cough, or to promote expectoration:* any, or all of theſe things, by turns, drank warm, anſwer the above intention exceedingly well, if taken in frequent but ſmall draughts, ſipping them as it were perpetually; for by this means much of the relaxing reſolving vapour is alſo drawn into the lungs, and much probably abſorbed by their imbibing veſſels; ſo that relaxing and diluting is thus carried on in a double manner, and of courſe very effectually. Very large draughts ſhould not be taken at once; for they overcharge the ſtomach, produce indigeſtion and flatulence, and force up the midriff too much, which greatly embarraſſes the reſpiration: therefore Hippocrates adviſes to drink in thoſe diſeaſes out of a cup with a narrow mouth,† probably both that the liquor and vapour might be preſerved warm longer, and that leſs might be drank at a time, and alſo that the ſteam might be more copiouſly carried into the mouth and noſe. However, ſtill he adviſes to drink freely to promote the expectoration, without which the patient dies: ‖ and many kinds of drinks he adviſes for this purpoſe, but particularly recommends barley-water, honey and wa-

* Lib. III. Cap. vii. † Coac. Prænot. 3. Cap. xvi. edit. Dureti. ‖ Section xiii. edit. Linden. ‡ Cap. de Pleuritide.

* De vict. in Morb. acut. ſect. xxx. edit. Linden.

† Μὴ ψυχρὸν, ὀλίγον δὲ ἐκ βομβυλίου ἀκ ἐυρυςόμου; for ſo it ſhould be read, or ſimply βομβυλίου, as all the commentators agree, lib. III. de Morbis, ſect. xxiv. edit. Linden. See Galen, Erotian, and Foeſius, on the word βομβύλιος.

‖ Lib. I. de Morbis, ſect. xxvi. De Locis in Homine, ſect. xxx. xxxvii. edit. Lindeni, and in many other places.

ter,

ter, oxymel, and vinegar and water.

These relaxing emollient drinks and vapours are in a more especial manner necessary, when the expectoration is very difficult and tough, and for those of a strigose habit of body and very rigid fibres; such as hard labouring people, and those of a hot and dry constitution, generally are. For as a very dry air, whether cold or hot, is found to hinder a free and copious expectoration, a moist and warm * one cannot but promote it, by relaxing the vessels, and attenuating also in some degree the over-viscid humours. Baglivi † greatly recommends the *fervida potio* for resolving pulmonic obstructions; but I think a moderate degree of warmth is more proper both for resolving and relaxing. Fomentations applied too hot on the external parts, are found to ineraffate the humours, and corrugate the skin, and are vastly improper upon inflamed parts. The vapours may be made more or less stimulating or relaxing as the case requires. I have known the fumes of vinegar itself of no small service in malignant peripneumonies: several kinds of medicines may undoubtedly be administered with great advantage by way of vapour: the steam of camphorated vinegar is no contemptible thing in many cases.

Hippocrates and the ancients were so sensible of the necessity of expectoration in pulmonic disorders, that they not only endeavour to promote it by the means I have mentioned, but also in difficult cases used much more powerful expectorants: ‖ the cream of barley with honey or oil, oxymel, hyssop, rue, galbanum, mustard, pepper, silphium, ‡ were some of the milder: in desperate cases, white hellebore, * elaterium, Ἄνθος χαλκῦ were advised: and desperate indeed they must be to be justified now-a-days; but as they had then no other, desperate remedies were to be tried in desperate diseases. We have a much more ample *materia medica*, and can avail ourselves of things of a much gentler nature. But I have several times given an emetic in peripneumonies with great advantage, when the expectoration hath been suddenly suppressed, and the difficulty of breathing greatly augmented; but it was when a proper quantity of blood had been drawn antecedently, and the violence of the fever abated: but in such cases very little should be drank after it to promote the vomiting. Oxymel scillitieum frequently doth great service this way, and its virtues in relieving asthmatic disorders are notorious: it not only, in a proper dose, pukes gently, but is also an excellent cooling attenuant, and useful cecoprotic, and a very good diuretic: it is undoubtedly greatly superior to simple oxymel, and may be so blended with oleaginous emollient medicines as to be highly serviceable as an easy expectorant. Where very soft, demulcent, lubricating medicines are indicated, our common linctus of spermaceti, ol. amygdal. dulc. or cold-drawn linseed-oil, with syrup. althææ, papav. errat. diacodium, or the like, answer the intention. But where oils disagree, a mucilage of quince-seeds, or linseed with rob of elder-berries, or black currants, or their syrup, or that of poppies, is very useful and grateful. Nitre, that very necessary cooling attenuant, is very agreeably administered in either of these compositions; and perhaps camphor, given this way, is the least nauseous. The utmost care should be taken never to give strong expectorants in the beginning of peripneumonies, till proper bleeding, &c.

* Aretæus says, neither cold drink nor cold air are good in pleurisies.

† De Pleuritide.

‖ Ἰσχυρίτατα ἐπαναχρεμπτήρια φάρμακα; De Locis in Homine, sect. xxx. Edit. Linden.

‡ Lib. III. de Morbis, sect. xviii. xxv. Edit. Linden, & alibi passim; and Aretæus advises much the same things in pleurisies and peripneumonies.

* Lib. III. de Morbis, sect. xvii. edit. Linden.

may have allayed the impetuosity of the blood and fever, otherwise they will encrease the inflammation and danger of suffocation, and eventually intercept what they were designed to pump up: the matter should be first concocted, and then expectorated. Another thing is also necessary to be observed in the use of such expectorants as oxymel scilliticum, oily medicines, gummose mixtures, and pectoral decoctions; and that is, that we do not bring on any considerable purging, which will certainly suppress the expectoration, and endanger the life of the patient.

Though a free expectoration of concocted matter is of the highest service in the cure of peripneumonies and pleuro-peripneumonies, and should be always encouraged, yet there are some kinds of expectoration of very ill omen.—It is particularly a very ill sign, when much sincere florid or frothy blood is spit up, and thus it is pronounced by Hippocrates and Aretæus, though they both speak so favourably of the concocted matter that is expectorated with a bloody tinge: the former condemns the Πτύελον λίην αἱματῶδες,* the latter the Δίαιμον ἀνθρῳδὲς σφόδρα; nay, Aretæus says, Ἐσὶ το Δίαιμον τῶν ἄλλων κάκιον,† and I think so too for the reason above-mentioned; for this fresh frothy blood proceeds from a rupture of arteries in the lungs, and not from a resolution of the inflammatory obstruction. Now, if arteries are burst in the lungs, the blood gushes into the cavities of the bronchia, sometimes in such quantities as to cause a sudden suffocation, if not immediately brought up; but more commonly it leaks into the pulmonary vesiculæ, and many times vessels are broke in the inmost recesses of the lungs, part of which may indeed be soon spit up fresh and florid, but much is very apt to remain in the ultimate ramifications and cellular interstices of the bronchia; which stuffs up the lungs, compresses the surrounding blood-vessels, and at length putrifies and corrodes all around it: hence a speedy suffocation, a dangerous vomica, or a direct gangrene, frequently ensues. This extravasated matter also may indeed be partly spit off in the form of a bloody sanies, or of livid and black concretions; but it is commonly with such difficulty, and so violent a cough, as even to encrease the extravasation: but it is generally so imperfectly, that much remains in the lungs, and produces most fatal consequences. Hippocrates * therefore declares such a kind of expectoration exceeding dangerous; and truly it is most commonly a sign of an impending mortification, or one actually formed. I remember many years since to have observed a matter spit up at the close of a peripneumony, by one Mr. Clark, a master of a merchant-ship, of this town, which exactly resembled pieces of boiled spleen, or rather more spongy, some of which were very fœtid: he died the 19th day of the disease. This corresponds with a prognostic of Baglivi † from Dodonæus: *Qui spuunt sanguinem nigrum porosum,* ‖ *ad instar spongiæ, iis pars aliqua sphacelo correpta est in pulmone, & omnes pereunt.*

As soon therefore as this expectoration of florid blood appears, I immediately direct bleeding in such quantities as are adapted to the strength of the patient, in order to abate the too rapid motion of the blood; lessen the inflammation, and prevent as much as possible the farther effusion of blood amongst the pulmonic vesiculæ and cellules, where it would do infinite mischief. If the hemoptoe continues, bleeding in the saphæna will be found of the utmost

* Coac. Prænot. 17. lib. II. cap. xvi. de Pleuritid, &c. ex edit. Dureti.

† Cap. de Pulmonaria.

* Prognostic. Coac. Prænot. 45. Cap. de Pleuritid. ex edit. Duret.

† Vid. Baglivi Opera, Lugduni, 1704. 4to p. 87.

‖ Αἱμάλος θρομβῶς μέλανας. Hippocr. lib III. de Morbis, sect. xix. edit. Linden.

service

ſervice. Beſides this, cooling emulſions, nitrous, demulcent, mucilaginous medicines, vegetable acids, and even mineral, if the hæmoptoe be very conſiderable, are required: a decoction of red poppies, coltsfoot, and figs, acidulated with elixir of vitriol, makes an admirable drink in ſome caſes: and we muſt endeavour to moderate the violence of the cough by diacodium, a ſoft linctus, or the like. But I utterly diſapprove of ſtrong aſtringents, and large doſes of opiates, as I have often known the imprudent uſe of them, in ſuch circumſtances, bring on a vaſt orthopnœa, and moſt terrible ſymptoms: for the extravaſated blood muſt be ultimately ſpit off, or the patient never recovers; but this is impoſſible without more or leſs of a cough to pump it up. I have ſeveral times known very large impoſtumations happen after ſuch kind of peripneumonies, where the patient had ſurvived the fever for ſeveral days, nay, for ſome weeks.

Though a morbid viſcoſity commonly prevails in pulmonic fevers, yet there are not a few in which an acrid tenuity is predominant. And as we obſerve in ophthalmics, the defluxion ſometimes as thick as glue, ſometimes as thin as water, and ſharp as brine, fretting the very ſkin of the cheeks as it trickles down; ſo the matter expectorated in ſome peripneumonies is extremely thin and crude, and the defluxion ſo very acrid as to excoriate the wind-pipe, &c. and cauſe an inceſſant and very violent cough.

The ſharp thin humours in catarrhal fevers very often bring on peripneumonic ſymptoms, by cauſing a conſtant irritation and agitation of the lungs; and no ſmall miſchief likewiſe ariſes from the violent concuſſions that are occaſioned by the frequent ſneezing which commonly attend ſuch acrid catarrhs, which are ſometimes ſo virulent as to enflame the noſtrils, and bliſter the very lips.—The great father of phyſic, in his moſt admirable prognoſtic, hath pronounced it very dangerous when catarrhs and ſneezing precede or ſupervene peripneumonic diſeaſes.—I once knew very ſevere pleuropneumonic pains immediately brought on by a fit of ſneezing, after they had quite ceaſed for a very conſiderable time.

In this catarrhal peripneumony, if I may ſo term it, no great loſs of blood is neceſſary; ſome, however, ſhould be drawn, in the beginning, to abate the preſent inflammatory diſpoſition, and prevent future ill accidents. Bliſters alſo ſhould be applied early, to avert and draw off the acrid defluxion. And here even gentle purgatives are proper to carry off the ſerous colluvies. The author of the ſecond Book de Morbis, amongſt the Hippocratic writings,* adviſes to purge in an eryſipelas of the lungs, where the expectoration is large and thin. And I have frequently experienced the good effect of purgatives in theſe catarrhal peripneumonies, though they are utterly improper in thoſe that are attended with a laudable concocted expectoration. Much leſs drink is neceſſary in this peripneumony, than in the dry kind; ſome demulcent pectoral ptiſan, however, is proper to temperate the acrimony of the humours, and ſhould be taken warm with ſome mild diaphoretics, to promote eaſy breathing ſweats. Coffee, in this caſe, is both a pleaſant and profitable drink. Some gentle opiates likewiſe are required to moderate the cough, ſuch as diacodium, or elixir aſthmaticum, not in large doſes, but frequently repeated; with which may be joined ſpermaceti, myrrh, olibanum, and camphor, as they will alſo tend to incraſſate the thin catarrhal humour, and abate its irritation; which, as Hippocrates ſays, brings on peripneumonies, &c. which ceaſe as ſoon as the defluxion becomes more thick and concocted.†

* Sect. liii. Edit. Linden.

† De veteri Medicina, Sect. xxxiii. Edit. Linden.

But

But of much worſe omen than this thin crude expectoration is the livid, gleety, and ſanious, frequently reſembling the leys of red wine, ſometimes more black, and ſometimes very fœtid; for this either proceeds from a gangrenous ſtate of the lungs, or from a deſtruction of the craſis of the blood by very great acrimony, which is often the caſe in the highly ſcorbutic: a vaſt many inſtances of which we have lately had amongſt the ſailors, after long cruiſes, and Weſt-India expeditions.—The blood drawn from ſuch peripneumonies appeared in a diſſolving putreſcent ſtate; the craſſamentum looſe and tender, the ſerum turbid and reddiſh. The black tongue, and teeth furred with a dark thick ſordes, the offenſive breath, and high-coloured or blackiſh rank urine, which were generally obſerved, denoted a great corruption of the humours; and the black ſpots, or bloody dyſentery, which frequently appeared the fifth, ſixth, or ſeventh day, more ſtrongly evinced it. It was ſurpriſing how much the pulſe and ſtrength of the patient ſunk after bleeding in ſuch caſes. With no ſmall concern and aſtoniſhment I ſeveral times obſerved a vaſt anxiety, fainting, cold ſweat, and a thready intermitting pulſe, very ſoon ſucceed it; though at the very beginning of the fever, and when the pulſe ſeemed ſtrong and throbbing before. I have ſeen this even in pleuro-peripneumonies, where the pain of the ſide was violent, the load at breaſt great, and the cough conſiderable; otherwiſe the peripneumonic appearance might have been imagined to be a mere ſymptom of a malignant fever. I am very ſure this putrid peripneumony never bore a ſecond bleeding with advantage; ſeldom, indeed, the firſt, unleſs there was ſome conſiderable degree of firmneſs and tenſion in the pulſe.* When I was diffident as to bleeding, I ordered ſcariſication and cupping ſometimes with ſucceſs; though in one or two caſes, the effuſion from the ſcariſications was vaſtly profuſe, and could not be totally reſtrained, till the patient expired.

Here, then, ſome anti-putreſcent pectoral medicines are neceſſary; a decoction of figs, coltsfoot, and red poppies, well acidulated with juice of Seville-orange or lemon firſt, and then with gas ſulphuris, or elixir vitrioli, is very proper. Nitre, olibanum, myrrh, flowers of ſulphur, and bole, may be adminiſtered with conſerv. lujulæ, rob of elder or currants, mucilage of quince-ſeeds, and ſyrup. de rubo idæo. Camphorated vinegar, with ſyrup of elder and raſberries, is an excellent medicine; a ſpoonful of theſe latter ſhould be given ever and anon.

Sound cyder, and wine and water, with Seville-orange or lemon juice, drank warm, promote expectoration when deficient, and correct the alcaleſcent acrimony. Tincture of roſes, with red poppy flowers, moderated an inordinate defluxion of the thin bloody ichor; frequently, however, oxymel ſcillit. & aq. cinnamon. fort. were neceſſary to pump up the matter, when a great rattling in the wind-pipe, and difficulty of breathing, indicated a vaſt quantity of it in the lungs: and yet very often the importunity and violence of the cough was to be appeaſed by elixir aſthmaticum, diacodium, &c. Sago, panada, jelly of hartſhorn, roaſted apple, cream of barley, or thick gruel, with a little wine and juice of lemon, given little at a time, but often, were neceſſary to ſupport the patient; even ſtrawberries, raſberries, currants, and cherries, were ſometimes indulged with advantage. Nor is this a new practice; for Aretæus † adviſes the fruits of the ſeaſon, ſuch as figs, &c. in the cure of pleuriſies; and the ſame author very juſtly ſays, that food may be ſo adapted, as to

* Vid. Obſ. noſtr. de Aere, &c. Vol. II. Jan. Febr. 1746.

† De curatione Pleuritidis.

be

be made phyſic.* I have been more large in the dietetic part; for in a word, a proper ſupport of the patients, and gaining time till the acrimony of the humours was corrected, and the lungs diſburthened from the putrid colluvies, ſeemed to be the great affair; at the cloſe, at leaſt, the whole depended on a well-regulated diet, in which toaſt with diluted red-port-wine, mulled up with Seville-orange rind, mace, or cinnamon, and well aciduiated, were remarkably uſeful. I ſeldom found bliſters of any ſervice in this caſe, often indeed miſchievous, fretting much, and venting a vaſt deal of thin bloody matter, and ſometimes attended with mortifications.

A very thin yellow ſpitting, as if tinged with ſaffron, is another ill ſymptom in pneumonic fevers; as either denoting that the inflammatory lentor ſticks faſt in the arteries of the lungs, and that nothing but the ſerous and thinneſt part of the blood is ſtrained through them; or elſe it ſhews that the whole maſs of blood begins to diſſolve, and its bilious principles to be highly exalted, and that all tends to a general putrefaction. In very putrid fevers even the milk, ſweat, &c. turn yellow, and ſtagnant blood putrefying and diſſolving always puts on that appearance. Hippocrates, indeed, commends that expectoration in which the yellow is ſtrongly mixed with the ſpittle,† or an intimate mixture of yellow with white; but then he declares the ſincere yellow ſpit (ξανθὸν ἄκρητον‡) dangerous; and it is conſtantly found ſo, and is commonly attended with a violent cough, and brought up with exceeding great difficulty. Beſides, it is many times ſucceeded by an hæmoptoe from a rupture of the veſſels; and this particularly when the tongue appears very red, dry, ſmooth, and ſhining, with a kind of livid bladders* at the top, which, by the way, is a bad ſymptom in all kinds of fevers. It is carefully to be diſtinguiſhed in practice, from which of the above cauſes this thin bilious expectoration proceeds; in order to which we ſhould diligently conſider the pulſe, ſtate of the blood, and temper of the body, for very different indications will ariſe from the different cauſes.

I ſhall conclude theſe remarks on the expectoration in pulmonic fevers, with the following obſervations of the great Hippocrates: "Matter ſhould be ſpit off eaſily and early in peripneumonies and pleuriſies; the colour of it ſhould be a yellow well mixed with the ſpittle, or a concocted yellow matter that is tinged with ſome, but not too much blood. If this happens in the beginning of the diſeaſe, it is very advantageous, but is not ſo much to be depended upon after the ſeventh day. It is exceeding bad when there ſeems a great quantity, and rattling, of matter in the throat, and yet nothing is ſpit off. It is indeed, in all caſes, dangerous when nothing is expectorated; but that which is very viſcid, ſmall, and globular, or frothy, is unprofitable. The ſincere yellow unmixed ſpitting is bad; when very bloody, or livid, it is dangerous; eſpecially when this appearance is very early; but that which is quite black, is worſt of all. It is an ill ſign alſo when it is very green (ἰώδες). Whatever is ſpit up with great difficulty, violent cough, and no relief to the pain and oppreſſion, ſhews the caſe to be bad." See Coac. Prænotion. 13, 14, 15, 16, 17, 18. Edit. Eureti, Cap. de Pleuritide, compared with the Prognoſtic of Hippocrates, who ſays, a concocted expectoration is like

* Ἐν Τροφῇ γὰρ κείσεται τὰ φάρμακα, ἀτὰρ ἐν τὰ φάρμακα ἐν Τροφῇ. Ibid.

† Τὸ ξανθὸν ξαμμεμιγμένον ἰσχυρῶς τῷ πυέλῳ. Prognoſtic. Sect. xiii. Edit. Linden.

‡ Ibid.

* Πομφόλυξ ὑποπέλιος on the tongue, Hippocrates pronounces dangerous, and that it precedes ſpitting of blood. Coac. Prænot. 6. Cap. de Pleuritide.

good

good pus,* not thin and gleety, nor very yellow, very bloody, green, or livid. Indeed in any abſceſs, or ulcer, ſuch colours are of very ill omen, as denoting a high degree of acrimony.

But when a reſolution, or concoction, of the inflammatory obſtructions of the lungs happens, not only part is thrown into the cavities of the bronchia, and ſo ſpit off, but alſo part of it paſſes on into the correſponding veins, and thence moves on with the reſt of the blood, in the common road of circulation; till at length it is partly carried off by thick turbid urine, in large quantities, depoſiting much reddiſh yellow-coloured ſediment, which, in peripneumonic diſorders, always betokens good, and partly alſo ſometimes by bilious ſtools. Hippocrates obſerves, that this thick ſubſiding reddiſh urine in pleuriſies, is a ſecure ſign,† and that it carries off peripneumonies when thick and plentiful.‡ He deſcribes theſe concocted urines as having ὑποστάσιας ὑπερύθρους ὁκοῖον Ὀρόβου; ‖ that is, a kind of a pale lateritious ſediment, as we call it. But he juſtly obſerves, it is an exceeding ill ſymptom, if, from being before thick, they grow thin about the fourth day; § and ſo it is indeed at any time of the diſeaſe, whilſt the fever continues very conſiderable.

Nothing promotes theſe urines and ſtools more effectually than emollient laxative clyſters, as they are a kind of fotus, and gentle ſtimulant, to all the parts of the lower belly, and not only tend to diſcharge urine and ſtool, but wind alſo, which ſometimes, by huffing up the abdomen and midriff, greatly ſtraiten the reſpiration. Beſides, when groſs excrements preſs on the bottom of the aorta and heads of the iliacs, too much blood regurgitates to the ſuperior parts, particularly the breaſt, which increaſes the inflammation, oppreſſion, &c.—Hippocrates therefore adviſes * cooling clyſters in peripneumonic fevers, eſpecially the firſt three days; † and Aretæus ſays, we ſhould inject an acrid clyſter, in ſome caſes, when we cannot well bleed. ‡ The greateſt care, however, ſhould be taken not to throw the patient into a profuſe diarrhœa, which will ſuppreſs the expectoration without relieving the diſeaſe; and accordingly the great oracle of phyſic ‖ ſays, it is a bad ſymptom where it happens to pleurities and peripneumonics; becauſe when there is a great flux of humours downward, the ſuperior parts grow dry, the ſpitting ceaſes, and the ſick die; § ſo that the body ſhould not be too coſtive, which would encreaſe the fever; nor too looſe, ** leſt the ſpitting and ſtrength of the patient fail. This is Hippocratic phyſic, and I am ſure as rational and well founded as any of the modern. But to proceed:

Sometimes the morbid matter is critically tranſlated to the lower parts, producing phlegmons, impoſthumes, eryſipelatoſe or œdematous ſwellings, ulcers, &c. particularly in perſons formerly ſubject to ſwoln or ſore legs, which are frequently noted to ſwell, or break up again, at the cloſe of peripneumonic diſorders, to the great relief of the breaſt. It is a well-known thing, that on drying up ulcers in the legs ſuddenly, the lungs become forthwith affected; and that hydropic tumours of theſe parts, forced up by laced ſtockings, bandage, &c. immediately bring on aſthmatic diſ-

* Πέπονα δὲ ἐςὶ τὰ μὲν πτύελα, ὁκόταν γένηται ὅμοια τῷ πύῳ. De Vict. acut. Sect. liii. Edit. Lindeni.

† 586 Coac. Prænot. Edit. Foeſii.

‡ De Vict. acut. Sect. liii. Ed. Linden.

‖ Ibid.

§ Coac. Prænot. 53. Cap. de Pleuritid. 20. Cap. de Urinis, Edit. Dureti.

* De Affect. Sect. viii. Edit. Linden.

† De Vict. acut. Sect. lii. Edit. Linden.

‡ De curatione Pulmonar.

‖ Hippocrat. Aphoriſm. 16. Sect. i.

§ Lib. III. de Morb. Sect. xvii. Edit. Linden. **Ibid.

orders,

orders, which sufficiently shew the natural consent there is between the breast and lower parts, and that they are reciprocally affected by disorders. Wherefore it seems rational, in severe pulmonic disorders, to attempt a derivation of the humours to the legs by tepid bathing, blisters, &c. And in fact this hath been often practised with success. How often do we find a metastasis of the gout to the lungs suddenly relieved by a revulsion of it to the feet by acrid cataplasms? Where there is great danger, we should neglect nothing. When blisters, applied to the legs in pulmonic diseases, ulcerate severely, they commonly give great relief; but they are often exceeding difficult to be healed up. This was particularly remarkable in the years 1740—41—46—47.*—I then also observed, that if the discharge from the ulcerated blisters was suddenly suppressed, not only the cough and difficulty of breathing returned, but sometimes a very great purging, and sometimes very profuse sweats forthwith came on. So that, in very few cases, the patient was either worn out by the pain and vast discharge from the blisters, or run down by a colliquative diarrhœa or sweat; terrible aphthæ frequently closing the fatal scene. Probably this arose from the great acrimony of the lymph and serum, which having been jellied as it were by the preceding fever, and now dissolving, was turned into a kind of putrid ichor (for when serum is coagulated by heat, its next state is a putrid liquamen, or dissolution). Nor did it only issue in profuse stools and sweats, but vented itself likewise by other ways, as very foul, sharp, turbid urine, pustular eruptions, angry boils, watery bladders, very painful and fretting on several parts of the body, as the shoulders, arms, back, breast, &c. From some observations of this kind, it is likely the ancients (who always carefully studied to follow and second nature's endeavours) applied acrid epithems, as salt, mustard, &c. to the breast, back, and shoulders, in pulmonic distempers. It is certain there is a great consent between the skin and the lungs, as is evident in a repelled itch, small-pox, measles, &c. which immediately fall on the breast.—Therefore blistering the above parts, after a proper quantity of blood is drawn off, should seem a rational practice, especially towards the decline of peripneumonic fevers.

Though nature takes sometimes different methods of relieving herself in peripneumonic diseases, yet her proper and common effort is by expectoration; and while that proceeds well, we may indeed favour her attempt, but never interrupt it, which violent purging, sweating, and the like, will infallibly do: so that those other, just now mentioned, seem only the by-ways of nature, and the morbific matter is then only to be strongly sollicited through them, when the high road is either stopped or greatly embarrassed.

* Vid. Obs. nostr. de Aere & Morb. Epidem. Vol. II.

CHAP. III.

Of the Peripneumonia notha.

WHAT I have said above, relates to the nature and management of inflammatory or true peripneumonics; but there is a disease, noted chiefly by Sydenham, and the later authors, under the name of a Peripneumonia notha, in which, though the load at breast is very great, the breathing very difficult, and the cough very importunate, and sometimes violent (all sufficiently denoting the lungs to be considerably affected) yet the fever and heat are small, many times scarce perceptible, the pulse either quick, weak, and small, or sluggish and oppressed, never hard and tense. So that as this distemper hath very different, and al-

moſt quite contrary ſymptoms to thoſe of a true peripneumony in ſeveral reſpects, it is reaſonable to ſuppoſe it ariſes from very different cauſes, and requires a very different method of cure. And in fact we ſee that baſtard peripneumonics commonly ſeize the old and phlegmatic, the weak and lax, the fat and unwieldy, and are moſt rife in wet, flabby, foggy weather, and winter ſeaſons; whereas the true inflammatory peripneumony generally attacks the robuſt, vigorous, and active, and is moſt frequent in cold dry weather, during north-eaſt winds, and high ſtations of the barometer. Theſe two diſeaſes, then, ſeem to differ almoſt as much as ardent and ſlow nervous fevers; or as much as an inflammatory quinſy doth from one that is purely humoral, or ariſing merely from a ſerous defluxion. And ſuch a ſerous acrid colluvies may fall on the lungs, be diffuſed into and amongſt the inmoſt receſſes of their veſicular and cellular cavities, and occaſion a great oppreſſion on, and ſome degree of obſtruction in, the pulmonic and bronchial arteries, and ſo greatly hinder a regular circulation of the blood through the lungs. The frequent chills and fluſhes of heat, however, the quickneſs and irregularity of the pulſe, anxiety and weight at breaſt, pain and giddineſs of the head, foulneſs of the tongue, &c. ſufficiently indicate a feveriſh habit.

Upon the whole, this diſeaſe ſeems to have its origin from a pituitous lentor of the blood, and a ropy diſpoſition of the lymph and ſerum, which being greatly redundant from ſuppreſſed perſpiration, &c. and put in motion by a febrile heat, or ſudden agitation of the humours, is thrown on the lungs faſter than it can paſs off (for viſcid humours never paſs as freely through the extremities of the arteries as when more thin and fluxile) whence being there more and more congeſted, it more and more obſtructs the pulmonic veſſels, till at laſt a total ſtagnation enſues, and death the conſequence. We ſee this exemplified in a particular manner, by bringing on an artificial peripneumony, if I may ſo call it, viz. let a girl labouring under a leucophlegmatic chloroſis (where ſuch a heavy viſcous pituita as I have mentioned, predominates) be forced into great and long-continued exerciſe; her lungs at length become ſo ſtuffed and loaded, that ſhe falls into a vaſt difficulty of breathing, and even an entire ſuffocation. This hath really happened in ſeveral inſtances, where the exerciſe hath been puſhed too far. I might have taken notice alſo, that ſuch a pituitous lentor of the blood and humours doth not give off a ſufficient quantity of animal ſpirits, to actuate the veſſels with force enough to carry on a due circulation.

As there are many intermediate ſtates between the violent inflammatory peripneumony, and this laſt mentioned, no diſtinct ſettled method of cure can be laid down, becauſe the peripneumonic malady, to be immediately treated of, may ſometimes incline much more to the inflammatory ſtate, and ſometimes much leſs.

For a diſeaſe is a diſorder in the animal œconomy, diſtinguiſhed indeed by ſuch and ſuch particular ſymptoms, and called by ſuch or ſuch a name; but each particular diſeaſe, in every individual patient, is conſidered by the attending phyſician, not according to the *nomenclature*, but according to the nature, cauſes, and ſymptoms of the particular diſeaſe in that particular perſon; and meaſures ſhould be taken accordingly. Thus if I meet with a great load and uneaſineſs at breaſt, a difficult hot breathing, cough, &c. with a full, ſtrong, quick pulſe, or a very tenſe and hard one, in a ſtrong and vigorous perſon, I have a ſufficient warranty to be much more free and frequent in bleeding, than when the oppreſſion, cough, &c. are not attended with

with ſuch a rapid and ſtrong, or quick and tenſe pulſe; eſpecially if I previouſly knew the labouring perſon to be of a weak, lax, or phlegmatic conſtitution.

So that when the pulſe is weak and low, the heat little, or not conſiderably above the natural, the urine pale and crude, and ſo on, I muſt proceed with great caution in bleeding a pulmonic patient, though the load and oppreſſion at breaſt may be very urgent. And in event, when blood is drawn from a perſon under a baſtard peripneumony, it either appears looſe, thin, and florid, or more commonly of a darkiſh livid hue, and not coated over with a thick viſcid buff, as in common inflammations of the lungs. And it is obſervable that the patient ſoon ſinks, and grows conſiderably weaker after ſuch an evacuation, though, for the preſent, ſeemingly relieved as to the anxiety and load on the præcordia. For as bleeding, in this caſe eſpecially, weakens the powers of nature, and the action of the ſolids on the fluids; the morbific lentor, the continent cauſe of the diſeaſe, is thereby encreaſed. Of this Sydenham himſelf was ſo ſenſible, that he particularly cautions againſt repeated bleedings in a peripneumonia notha, eſpecially in perſons of a groſs habit of body, and that had paſſed the flower of their age;* though in a true peripneumony, he imagined he could as effectually vent the matter of the diſeaſe through the orifice of a vein, as by the trachea itſelf.† It is moreover certain, that common catarrhal fevers, in which a ſerous colluvies abounds, will not bear very large bleeding, much leſs a peripneumonia notha, where a ſlimy pituita is redundant.

But as bleeding, on the one hand, is to be uſed with great caution in this diſorder, ſo, on the other, are very heating and ſtimulating medicines, eſpecially at the beginning of the diſtemper; otherwiſe not only the oppreſſion on the breaſt is greatly encreaſed, but a comatoſe diſpoſition alſo is readily brought on. For the morbid lentor may be forced in too great quantities on the veſſels of the brain, and accumulated there, as well as in the lungs; and evidently is ſo from the giddineſs, pain, and heavineſs of the head, which commonly attended the baſtard peripneumony; for as the free deſcent of the humours from the head is conſiderably hindered by the too great repletion of, and almoſt ſtagnation in, the lungs, the right ventricle of the heart hath not ſufficient room to play off its contents of blood, and receive others freely.

We ſhould proceed, therefore, with great circumſpection in treating theſe kinds of diſeaſes, which are always dangerous, and frequently fatal; and the more ſo, as, at the beginning, the mildneſs of the ſymptoms is too apt to miſlead both the patient, and leſs cautious or unexperienced phyſician, into a too great neglect or wrong management. I have ſeen it more than once, or twice, taken for a mere fit of hypochondriaciſm, where a very few hours have ſhewn the fatal miſtake. But where a perpetual laborious wheezing, great anxiety, and conſtant oppreſſion on the præcordia, comatoſe ſymptoms, cold extremities, and dark lead-coloured nails and viſage are come on, the phyſician muſt be more ſtupid than the patient, not to ſee the immediate danger.

I think in general more or leſs blood ſhould be drawn in the beginning; but as Sydenham well obſerves,* during the operation, let the patient be kept in a recumbent poſture, by which means faintneſs, otherwiſe very apt to come on, will be avoided. For this not only leſſens the too great load and diſtenſion of the veſſels, but alſo makes room for ſuch drinks and medicines as may be neceſſary in the proceſs of the cure. But as to the repe-

* Cap. de Peripneumonia notha.
† Cap. de Pleuritide.

* De peripneumonia notha.

tition of bleeding, we ſhould be very cautious, and well conſider the ſtate of the blood, the ſtrength of the pulſe and patient, before we adviſe it. It is undoubtedly ſometimes neceſſary. We are frequently obliged to bleed repeatedly in aſthmatic paroxyſms, where there is no manner of fever.—Mild, attenuant, ſaponaceous medicines, thin diluting detergent drinks, and the application of bliſters, ſhould ſucceed bleeding. An infuſion of inciding, deterging, pectoral herbs, as ground-ivy, hyſſop, penny-royal, liquorice, or a thin muſtard-whey ſweetened with honey and ſharpened with lemon, are proper for common drink. Some dilution is neceſſary in this diſeaſe, though nothing ſo much as in a true peripneumony, nor indeed doth nature call for it by any great thirſt; yet as the lentor, predominant in this diſorder, is moſt readily diſſolved by warm watery liquors, ſome are undoubtedly proper.

As a baſtard peripneumony is commonly attended with frequent urgings to vomit, I think it pretty clearly hints to us the expediency of relieving nature that way; and accordingly I have often experienced the good effects of gentle vomits in it, after ſome blood had been drawn off.—A ſpoonful or two of oxymel ſcilliticum, or vinum ipecacoanhæ, with a few draughts of muſtard-whey, or the like, are ſufficient. A large quantity of any kind of liquor ſhould not be drank. This not only pumps up much heavy pituita from the ſtomach and lungs, but alſo by the concuſſion it gives the whole vaſcular ſyſtem, promotes a general attenuation and fluxility of the humours; and a ſtool or ſweat commonly ſucceeds.

The mighty cures in pleuriſies, &c. boaſted of by Rulandus,* and others, with the antimonial aqua benedicta, were greatly owing to its emetic quality; and the famous Poudre des Chartreux,† or kermes mineral, gained ſuch high repute in pleuriſies, peripneumonies, and defluxions on the breaſt, in a great meaſure at leaſt, from the gentle efforts it creates to vomit. Undoubtedly it hath had good effects in catarrhal fevers, and pituitous peripneumonies; but to give either the one or the other in inflammatory peripneumonies, or pleuriſies, without previous bleeding, is utterly wrong, dangerous, and empirical.

Let me here take notice of what I many years ago mentioned, that the beſt of all the antimonial preparations I have ever tried (and I have tried many) is, in my opinion, the common vinum benedictum, or infuſion of glaſs of antimony in wine.* It is ſurpriſing we ſhould ſeek for any other, as this poſſeſſes the whole virtues of antimony. You may make it a rough emetic in a large doſe; you may give it in a few drops, ſo as merely to excite perſpiration. With it you may puke, you may purge, you may ſweat. From ten to fifty or ſixty drops, it is an attenuant, alterative, diaphoretic and diuretic; a few more gently purge; and every one knows a large doſe ſtrongly vomits. What will any other preparation of antimony do more? Here it is in *ſolutus principiis*, as the chemiſts ſpeak, in mere effluvia as it were, in the moſt highly attenuated manner, and moſt intimately and adequately mixed with the menſtruum; capable of paſſing and affecting the moſt intricate meanders of the very minuteſt veſſels, and yet powerful enough to ſtimulate the great alimentary canal. The common ſolid preparations of antimony, are either a mere inert calx, or very uncertain in their operations, ſometimes very rough, ſometimes lying a long time in the ſtomach and bowels, and exciting very untoward ſymptoms; whereas this quickly acts, and as quickly paſſes off. It certainly is an admirable attenuant and deobſtruent, without heating a tenth part ſo much

* Mart Rulandi Curat. empiric. paſſim.

† See Memoires de l'Academie royale des Sciences, ann. 1720.

* Vid. Obſ. noſtr. de Aere, &c. Vol. I. page 140, there called Eſſentia Antimonii.

much as volatile alkalious ſalts, and in moſt caſes much more ſafe and efficacious, particularly in the diſeaſe now treated of. In a word, it much more deſerves the name of a catholicon, than any of the boaſted noſtrums that are quacked upon the world by the great W——d, or the meaneſt itenerant. In good hands it will certainly do great things. The timid, low, inſipid practice of ſome, is almoſt as dangerous as the bold unwarranted empiriciſm of others; time and opportunity, never to be regained, are often loſt by the former, whilſt the latter, by a bold puſh, ſends you off the ſtage in a moment.

Bliſters ſhould never be neglected in a peripneumonia notha, as not only ſerviceable from their attenuating and ſtimulating quality, but alſo as they drain off part of the morbid colluvies. A large one to the neck ſhould always be ſet at the beginning, and epiſpaſtics to the legs and thighs, are often found to relieve the head and breaſt, when other methods fail. But as it frequently happens in this diſorder that the limbs grow torpid and coldiſh (a very bad ſymptom!) they ſhould be well rubbed before the bliſters are laid on, and then well wrapped up in flannel (which, by the way, is frequently alſo neceſſary in low nervous fevers) for this very much promotes the riſing of the bliſters, and the conſequent diſcharge.

When comatoſe ſymptoms, and a very different reſpiration remain after bleeding, you may draw off more blood by cupping and ſcarifying the neck and ſhoulders, when you cannot venture to open a vein again; and this hath frequently a ſur, riſing good effect. In a very threatening caſe you ſhould bliſter on the ſcarifications.

Frequent ſtools are certainly uſeful in this diſorder, Sydenham adviſes purging every other day,* after bleeding once and again, but I think this is over doing it in both reſpects. For though bleeding and purging too, may be neceſſary at the beginning, yet it is very ſeldom proper to repeat the former, and the latter muſt be managed with ſome caution, eſpecially when repeated. For the patient is apt to fall into faintneſs, cold ſweats, &c. unleſs properly ſupported during the operation; which, indeed, may be eaſily done; but ſurely in moſt ſuch caſes it requires more than ſmall-beer, or water-gruel, to do it.—There is one thing to be obſerved as to both theſe evacuations, and that is, that if the ſick ſpit largely a concocted matter, which is ſometimes the caſe even in this peripneumony, neither one nor the other is proper; and laxative clyſters, or mild eccoprotics, only ſhould be given, at leaſt during the copious expectoration; and thin muſtard-whey, hydromel, or pectoral decoction, with a ſmall quantity of ſoft white-wine in them, ſhould be given frequently to promote it. Hippocrates, in ſeveral places, adviſes hydromel, and ſweet and watery wine † in pleuriſies and peripneumonies, to promote ſpitting. Diuretics in this caſe, if we are happy enough to ſucceed with them, are of very great ſervice, eſpecially provided we can promote a foul hypoſtatical urine. But the truth is, in this diſorder very little is to be depended on urine, either as to criſis or prognoſtic; only a thin, pale, or limpid urine, is univerſally bad in pulmonic diſorders.

Nitre, ſpermaceti, cinnabar, ſaffron, pulv. contrayerv. camphor, ſp. vol. oleoſ. lac. ammoniac. and oxymel ſcilliticum, decoctions of figs, liquorice, and elecampane, are the moſt adapted parts of the materia medica in this diſtemper. The ſaline draughts, made with ſalt or ſpirit of hartshorn, and juice of lemon or diſtilled vinegar, are exceeding uſeful, as they promote expectoration greatly,

* Cap. de Peripneum. notha.

† Οἶνος γλυκὺς καὶ ὕδατος, Lib. III. de Morb. Sect. xxiv. Ed. Lind.

relieve

relieve the difficulty of breathing, and commonly operate by ſweat or urine. But opiates, and oily mucilaginous medicines, are hurtful, and ſo are the highly ſtimulant and volatile, if given too early, though they ſometimes have a good effect towards the end. But the different degrees of heat, fever, and difficulty of breathing, the ſtate of the pulſe, blood, and other concomitant ſymptoms, can only determine in what manner, and to what degree, very attenuating and warm medicines, or thoſe of a cooler kind, may be made uſe of.

CHAP. IV.

Of Pleuriſies.

A Violent pain on either ſide of the breaſt, attended with an acute fever, is commonly called a pleuriſy; and this, whether it ariſes from an inflammation of the intercoſtal muſcles, the perioſteum of the ribs, or the pleura itſelf; which laſt indeed, in ſtrictneſs of ſpeaking, is only the true pleuriſy, the former being ſpecies of an inflammatory rheumatiſm, and are called baſtard, or ſpurious pleuriſies. However, as they greatly affect the reſpiration, when violent, they are always attended with much more ill conſequence than rheumatic pains in other parts of the body, and demand a particular regard, and a ſpeedy removal.

For as the violence of the pain hinders a due expanſion of the thorax, the reſpiration is immediately affected; hence the lungs, not being ſufficiently inflated, the blood cannot paſs freely from the pulmonic arteries, to the pulmonic veins, and ſo into the left ventricle of the heart. Whence a congeſtion, and ſome degree of ſtagnation of blood in the lungs will ariſe. Now as the right ventricle of the heart is continually throwing more blood into the pulmonic artery, its branches become more and more diſtended, till at length they are rendered ſo very turgid as to preſs on and obſtruct the branches alſo of the bronchial arteries; and thus an inflammation of the lungs, or a compleat peripneumony, is often the conſequence of a true, or baſtard pleuriſy, eſpecially when the blood is very viſcid. Indeed whatever interrupts a free inſpiration and expiration, is apt to produce this. Thus oftentimes a quinſy brings on a peripneumony, the free paſſage of the air through the glottis into the lungs being obſtructed. Frederick Hoffman * takes notice that even flatulent and ſpaſmodic colics, continuing any time, are often ſucceeded by pleuriſies and peripneumonies; the pains, ſpaſms, and flatulence, impending the free action of the diaphragm; and partly alſo, as he ſays, by hindering a due paſſage of the blood through the viſcera of the abdomen, by which too much is thrown on the lungs, pleura, &c. Very ſtrait lacing, and ſtraining for a fine ſhape, hath made many a fine girl ſpit blood, and ruined the lungs, by preventing a full and eaſy inſpiration. A fractured rib, or even a ſimple contuſion of the breaſt, very often brings on an hæmoptoe, cough, &c. In truth, when any of the muſcles, that are but even ſubſervient to reſpiration, are greatly affected, peripneumonic ſymptoms may come on. Monſieur Mery † mentions the caſe of a young man, wounded in the tendon of the pectoralis major, who was forthwith ſeized with a very great difficulty of breathing, and an acute fever. In a word, all kinds of pains in the breaſt, and pleuriſies eſpecially, are in a peculiar manner dangerous, as they are very apt to bring on more or leſs of a peripneumony, by cauſing a great interruption to regular and eaſy reſpiration. And this is the reaſon why we

* Conſult. medicinal. Tom. 1. Francof. 1734, 4to. p. 450.

† Memoires de l'Academie Royale des Sciences, 1713.

meet

meet with many more pleuritic fevers, accompanied with peripneumonic symptoms, than true and exquisite pleurisies. Where a severe pain of the breast is attended with an acute fever, load at breast, cough, difficulty of breathing, expectoration, or spitting of blood, this is always the case, and is very properly denominated a pleuro-peripneumony. Indeed it sometimes happens, that upon the coming on of the peripneumony the pain of the side ceases, which may happen when the infraction of the lungs is so great, that little blood passes from the right ventricle of the heart to the left, and the aorta is not half supplied with blood; so that the powers of nature sinking for want of it, all tend to an universal stagnation, and the patients become, as it were, insensible; or, as Aretæus * says, complain of nothing, though their pulse intermits, and their extremities are cold. I have seen several such instances.

About four years since, one Mr. Cam, a sailor, was seized with a complete paraplegia about the 9th day of a pleuro-peripneumony, and about twenty-four hours before his death. It is a fatal symptom, therefore, when the pleuritic pain suddenly ceases, and yet the difficulty of breathing, and load at breast, still continue or encrease. And the following aphorism is most certainly true: "A peripneumony supervening a pleurisy is dangerous.†"

But the nature and consequences of pleurisies will more fully appear from the following considerations:

1st. The inflamed pleura is apt to cleave to the external membrane of the lungs, and propagate the inflammation to them; and this will more easily happen, when, either by nature or disease, a previous cohesion had been partly formed. Hence those that have once laboured under a pleuro-peripneumony, are often afterwards subject to the like disorder; the callosity, as I may call it, formed by the concretion, straitening the blood-vessels of the pleura, and making them more liable to be obstructed by a sizy blood for the future. Not to mention the more or less impediment which the adhesion of the lungs to the pleura gives to full and free respiration.

2dly. As the external membrane of the lungs is only a continuation of the pleura itself, the inflammation may be diffused from one part of the pleura to another, and even to that which immediately invests the lungs; for it may spread a considerable space, just as we often see a small inflammatory speck on the eye, soon spread into a general inflammation of the whole globe, eye-lids, &c. Besides, the inflammation may primarily fall on this membrane of the lungs, and then pains, altogether like the pleuritic, will arise, though the internal membrane of the thorax, or pleura, may not be affected. I am quite of the experienced Hoffman's * opinion, that this is often the case.

3dly. The very mediastinum is but a duplicature of the pleura, and an inflammation may attack any part of it, or be propagated to it; in which case very acute pains are felt under the sternum, or between the shoulder-blades. This we sometimes meet with, and it is generally attended with great danger. Both Hippocrates † and Aretæus ‡ take notice of a dorsal pleurisy, in which the pain shoots from the spine to the breast-bone, attended with an orthopnœa, cough, and a very difficult and small expectoration. This seems to be the case mentioned. Sometimes the pain is forward, and directly under the sternum, where the mediastinum is attached to it, and in conse-

* De Pulmonaria.

† Hipp. Aphorism. 11. Sect. vii.

* Cap. de Febribus pneumonicis, Tom. IV. Parte i.

† Lib. III. de Morbis, Sect. xxi. Edit. Lindeni.

‡ Cap. de Pleuritide.

quence

quence of it, apoſtems have been found in that part. When the pain ſeems to lie very deep in the cheſt, with a great load and anxiety, palpitation of the heart, and a conſtant inclination, as it were, to raiſe a cough, the pericardium (the external membrane of which is alſo from the pleura) is commonly inflamed.—Where the pain is ſpread all over the breaſt, with a great oppreſſion, and perpetual darting pricking pains here and there, not only the mediaſtinum, but the external membrane of both lobes of the lungs, ſeem to be inflamed; the great difficulty of breath, load and anxiety, perpetual cough, and conſtant deſire of ſitting up erect, ſhew this to be the caſe; and a very dangerous one it is, as well as an inflammation of the pericardium. Inflammations of the mediaſtinum, pericardium, and membranes of the lungs, ſeem to be what the ancients called an eryſipelas of the lungs: Hippocrates deſcribes it as an acute fever, with great pain in the fore parts of the breaſt and in the back, with much load, ſeeming fulneſs, and a dry cough.*

4thly. The upper membrane of the diaghragm is likewiſe from the pleura, and may be either primarily inflamed, or ſecondarily from the inflammation of the pleura. And this certainly happens more commonly than is imagined. This is called a paraphrenitis, and is attended with a very acute fever, and a very violent pain extended from the lower ribs to the loweſt vertebræ of the back, a ſhort, convulſive, ſingultoſe kind of breathing, a vaſt anxiety and uneaſineſs, dry cough, hiccup, and delirium; an exceſſive pain is particularly felt on every inſpiration, which darts itſelf from the pit of the ſtomach to the very loins; the hypochondrium of the ſide affected is drawn inwards and upwards† under the ribs, and the abdomen is ſcarce perceptibly moved in reſpiration, but remains fixed and convulſed, as it were, by the violence of the pain, in attempting an inſpiration.

Any part, therefore, of this widely-expanded membrane being inflamed, a kind of pleuriſy is generated, in which the lungs themſelves, by continuity, contiguity, coheſion, or ſympathy, will ſoon become greatly affected. Nay, the lungs may, and often are, found to adhere to the mediaſtinum and diaphragm, as well as to the pleura commonly ſo called. But if the lungs ſhould not adhere to any part of the pleura, peripneumonic ſymptoms may ſupervene an inflammation of it; becauſe the let and hinderance it gives to a regular reſpiration, will greatly interrupt a due circulation of the blood through the lungs. The ſame may be ſaid with reſpect to any conſiderable inflammation of the intercoſtal muſcles, or perioſteum of the ribs. Indeed, in theſe caſes, the peripneumonic ſymptoms may not preſently come on, nor commonly do they till after two, three, or four days; but as the inflammatory pain hinders a due expanſion of the thorax, and a ſufficient inflation of the lungs, they at length alſo may become greatly affected.

Theſe then being too often the conſequences of pleuritic fevers, we ſhould endeavour to take off the inflammation, in a true or baſtard pleuriſy, as ſoon as poſſible, by large and repeated bleeding, cooling nitrous medicines and drinks, fomentations, opiates, &c. In a word, we ſhould treat the caſe as a mere inflammation of the membranes, muſcles, or perioſteum; but when load at breaſt, cough, expectoration, &c. come on, we muſt have a regard to theſe alſo, as well as to the pain of the ſide, &c.

And it is that the nature, ſituation, and difference of the diſeaſes of the breaſt and lungs, may be more eaſily known and diſtinguiſhed in practice, that I have been ſo particular in deſcribing

* Lib. I. de Morbis, Sect. xiii. Edit. Linden.

† Si ſeptum tranſverſum percuſſum eſt, præcordia ſurſum contrahuntur. Celſus, Lib. V. Cap. xxvi.

ſcribing them. For it would be no ſmall abſurdity to give expectorants, oleaginous linctus, and pectorals, in a ſimple inflammation of the muſcles of the breaſt, or pleura; even although a ſlight ſymptomatic cough; and ſome difficulty of breathing, ſhould attend, eſpecially at the very acceſs of the fever: whereas well-timed bleeding, and a proper regimen, would have ſoon carried off the diſorder. On the other hand, it would be altogether as wrong to reſt ſolely on bleeding and fomentations, where the lungs alſo were primarily, or even ſecondarily, affected in any conſiderable degree.

The diſtinction of pleuriſies into true and baſtard, hath a real foundation in nature, and is of ſome import in practice; for when the intercoſtal muſcles only are inflamed, much more is to be expected from topical applications, as fotus, cataplaſms, bliſters, cupping, and the like, than when the pain of the ſide is from an inflammation of the pleura, or external membrane of the lungs. The ſoreneſs to the touch, the pain on lying on the affected ſide, and chiefly on a full inſpiration, the tumor and redneſs of the part which ſometimes appear, diſtinguiſh this from the internal pleuriſy.

Beſides, there are ſome pains of the ſide, and thoſe too pretty ſevere, which ariſe from a ſharp acrid defluxion on the muſcles of the breaſt, and perioſteum of the ribs; and which much ſooner give way to topical applications, edulcorant medicines, and proper purges, than to bleeding, which in ſuch caſes is no farther neceſſary than to take off a plethora, if it ſubſiſts. Indeed, where an acrimonious humour is the cauſe, you may bleed and bleed on to very little purpoſe but that of weakening your patient. Will bleeding cure obſtinate ſcorbutic or venereal pains? It may as well remove the pain from a rotten tooth, or a thorn in the fleſh.

The ancients well diſtinguiſh between wandering rheumatic or flatulent pains about the breaſt and ſide, and the truly pleuritic. Hippocrates juſtly ſtyles them Ἀλγήματα ἰσχνὼς ἐπικότα ἄσημα,* and forbids bleeding in them. Theſe they attempted to cure by fomentations, purging, &c. not by bleeding; whereas the fixed ſyſtrophic inflammation of the breaſt, as the commentators call it, always required bleeding. And we eventually find erratic, ſcorbutic, rheumatic pains, much better carried off by purging, fotus, diaphoretics, and edulcorants, than by bleeding.—Some of them, indeed, give way to nothing but mercurials, antimonials, anodyne pluſters, cupping, or bliſtering; and ſome wear off only by time, patience, and exerciſe. When the pains are at the bottom of the thorax, in the hypochondria, or below the midriff, attended with borborygmi, and a tumid abdomen, clyſtering or purging is unqueſtionably proper: and yet theſe pains are ſometimes very acute, and, from the inflation of the inteſtines by wind, oftentimes accompanied with no ſmall difficulty of breathing; but, as Aretæus obſerves, they are very improperly called pleuritic. I have many times ſeen ſuch complaints vaniſh immediately on the uſe of a clyſter, or a few ſtools, to the ſurpriſe of thoſe who were ignorant of the cauſe. Bleeding, in this caſe, always encreaſes the flatulence and pain. This is entirely conſonant to the Hippocratic doctrine, and the truth of things; for the great dictator of phyſic ſays expreſsly, when the pain is below the ſeptum tranſverſum, and the abdomen is tumid, you ſhould purge gently with black hellebore, peplium, ſilphium, to which add cumin, aniſe, &c. that it may carry off the wind as well as the ſtool. †

But in all theſe caſes the pulſe, degree of fever, the tongue, ſituation of the pain, and manner of breathing,

* Shifting, erratic, ſlight pains, without the true pleuritic ſymptoms; Coac. Prænot. 491. Edit. Foeſii. Compare this with the caution about bleeding, at the end of Aretus's ſecond book on the Coac. Prænot.

† De Victu acutor. Sect. xiii. Edit. Lindeni.

pretty clearly discover to the judicious practitioner what is the matter, and what is to be done. When the pain of the thorax is violent, the pulse hard, tense, and quick, the fever high, the pains may be pronounced pleuritic, especially when a rigor preceded. True pleuritic disorders almost always begin with a rigor, and the pulse is very hard and tense, like the vibrations of a cord. The pains are very sharp, pricking, and fixed, not tensive and shifting, as the flatulent; nor uncertain, wide, and wandering, as the rheumatic. The hardness of the pulse is one of the most pathognomonic signs of an inflammation of membranous parts: when, therefore, pains lie under the sternum, or shoot from the spine to the breast-bone, you may guess the mediastinum is inflamed by the tension of the pulse. The lungs, as Aretæus * says, being insensible (at least much less sensible) a vomica is often formed in the lungs without much attendant pain. The membranes of any organ are vastly more sensible than what is called its parenchyma, the ureters than the kidnies, the membranes of the brain than the brain. The hardness of the pulse then, and violence of the pain, may be the chief diagnostics in disorders of the thorax, and greatly determine as to bleeding, &c. I think the situation of the pain is not so much to be regarded as some make it; for as any part of the pleura, intercostal muscles, or periosteum of the ribs, may be inflamed, the pain may be felt in any part of the thorax. And I have known as severe pains near the bastard ribs, as in any other part. Hippocrates and his commentators determine bleeding to be then peculiarly proper, when the pain shoots up to the clavicle and shoulder; but in my opinion, when the pain is very severe in any other part, it is equally necessary. The pain is very low in a paraphrenitis, and yet none more loudly demands it. When the pectoralis major and serratus anticus minor are inflamed, the pain cannot but dart up to the shoulder, as their tendons are inserted near its articulation. This is often the case in a bastard pleurisy, and is most effectually relieved by bleeding and fomentations; but these would be as necessary if the intercostal muscles, or periosteum of any of the ribs, were inflamed.

Though some pains of the side may be greatly different from the pleuritic, and require much less bleeding, they should never be neglected, especially if they considerably obstruct the respiration; for then they are always followed with very ill consequences, a strong instance of which you have in the following history:

About Christmas 1728, Mr. T—ll, a worthy sober gentleman, about thirty, of a thin habit of body, but a lively active disposition, was seized with a pain in his right side, and grew a little feverish; the pain was so slight that he never confined himself. He was bled, however, and took some few things from his surgeon.—But finding the pain of his side daily encreasing, about three weeks or a month after the first attack, he consulted me. I found him under hectical heats, a short cough, and difficulty of breathing, which last, he said, proceeded merely from the pain of his side. He expectorated little, and that with difficulty; and it was now sometimes slightly tinged with blood. I ordered him to be bled, to take an oily expectorating mixture, lac ammoniac. oxymel. scillitic. the saline draughts, and pectoral decoction, and kept him to a cool diluting regimen. By these means, in a very few days, he began to spit off a vast quantity of purulent, bloody, and fœtid matter, which proceeded from a vomica in the left lobe of the lungs, for he felt a soreness in, and said that the matter came from, a place to the left of the sternum, towards the bottom of the thorax. At length very little was expectorated, and that neither fœtid nor bloody; and his cough daily abated, nor did any

* Cap. de Pulmonar.

any great load at his breaſt remain. A pectoral balſamic decoction of the bark, ſoon alſo took off his remaining heats and ſweats; ſo that I flattered myſelf with hopes of his ſpeedy recovery. But notwithſtanding all theſe promiſing ſymptoms, the pain of his right ſide ſtill continued, exactly in the ſame place where it firſt began; nay, it ſoon became exceeding violent, ſo that I thought it neceſſary to bleed him again, and even repeat it. I ordered alſo emollient fomentations, and an anodyne plaſter of opium, camphor, and emplaſtr. e cymino; and theſe not availing, cupping on the part with ſcarifications. All was in vain, for the pain daily encreaſed, and nothing gave the leaſt eaſe or ſleep but repeated opiates. At laſt the part began to ſwell conſiderably, and manifeſt ſigns of an abſceſs came on, which I endeavoured by all proper methods to promote. In a few days the ſurgeon opened it, from whence iſſued an immenſe quantity of purulent matter, ſo much, that we imagined it came partly from the cavity of the thorax. Upon farther examination, we found two of the ribs foul and black, and two penetrations, one between the fifth and ſixth of the true ribs (which were carious) and the other between the fourth and fifth, reckoning downwards. He, being exceeding weak, hectical, and emaciated, died March 29th, 1729.

On examining the body, ſome of the intercoſtal muſcles, part of the ſerratus anticus major, and the ſupreme portion of the obliquus deſcendens, appeared black and ſphacelated, and the impoſtume had extended itſelf almoſt home to the ſpine of the back. The lower part of the pleura was quite black, and the diaphragm alſo on that ſide livid. The upper perforation entered the right lobe of the lungs, which, for a conſiderable way round it, was purulent. In the left lobe we obſerved a kind of callofity, of a pretty large extent, where probably the vomica lay; and near the vertebræ a large tumour, bigger than a turkey-egg, in a ſtate of ſuppuration. There were ſeveral other ſmall tubercles, ſome very hard, and almoſt ſtony; ſome ſuppurated and full of pus.—Both lobes of the lungs were greatly diſeaſed, and in ſome places quite livid. They adhered firmly to the pleura in a vaſt many places, ſome of the adheſions of a pretty large extent, ſome by a ſort of fibrous ligaments.—In the right cavity of the thorax, was about half a pint of very fœtid dark-coloured matter.

Probably ſome obſtructions were formed in this gentleman's lungs, antecedent to the pain of his ſide, as he had been ſometimes ſubject to a ſhort dry cough; but I am perſuaded, the ſharp humour that fell on the ribs and intercoſtal muſcles, by hindering a free reſpiration, greatly contributed towards the obſtructions and ſuppurations in his lungs; and by preventing alſo a due expanſion of the thorax, it might encreaſe at leaſt the adheſion of the lungs to the pleura.

I ſhall conclude this chapter with a word or two on the method of treating inflammatory pleuriſies; in which, without all doubt, drawing off more or leſs blood is indiſpenſably neceſſary, previous to any other attempt of relief. The ſtrength of the patient, pulſe, and fever, the violence of the pain, and difficulty of breathing, muſt determine the quantity. But let me add, the quality of the blood ſhould alſo be nicely inſpected, for a denſe ſizy blood not only indicates an abundant quantity of the red globules, but likewiſe its inflammatory diſpoſition, and that the patient, if need be, can well bear large and repeated bleeding.

It ſhould be duly conſidered, that if an inflammation of the pleura, &c. is not timely abated by bleeding, or reſolved by proper diluting, antiphlogiſtic, emollient drinks and medicines, it cannot but end in an impoſtumation, or gangrene. Beſides, theſe

pleurifies rarely fail of bringing on peripneumonic ſymptoms, if of any continuance; and therefore we cannot be too early and earneſt in endeavouring to take off the inflammation: for the pain thence ariſing, greatly embarraſſes the reſpiration, and of courſe the due circulation of the blood through the lungs, which being now alſo in a very viſcid ſtate (the immediate occaſion of the original pleuritic inflammation) is much more apt to ſtick in the ultimate branches of the pulmonic or bronchial arteries, than if it was more thin and fluxile. This is the reaſon why pains of the ſide, from inflammation, bring on peripneumonies much more frequently than when from a mere acrimonious defluxion, or the like. Here, therefore, Celſus's maxim is certainly right, *Remedium . . . eſt magni & recentis doloris, ſanguis miſſus*; and what he had is true likewiſe, *at ſi . . . vetuſtior caſus eſt. . . . ſerum id auxilium ſt.**

An emollient cooling clyſter ſhould immediately ſucceed bleeding, eſpecially if the body is coſtive, which not only empties the inteſtines of groſs excrements and flatus, but alſo derives a greater quantity of blood through the deſcending aorta and iliacs, and in both reſpects eaſes the ſuperior parts. † Hippocrates conſtantly adviſes to clyſter in the beginning of pleuriſies, and gives this exceeding good caution, that we ſhould neither ſuffer the body to be too coſtive, leſt it encreaſe the fever, nor too looſe, leſt both the ſtrength and ſpitting fail. ‡

This done, let the pained part be fomented with a decoction of ſem. lini.—Fœnugræc. flor. chamem. in milk and water. This was alſo the practice of the ancients; Hippocrates § ſays fomentations ſhould be tried both at the beginning, and afterwards to reſolve the pleuritic pains. Theſe, both of the dry and humid kind, he conſtantly adviſes in pleuriſies.—I have often ſeen them ſucceed, when repeated bleeding had proved ineffectual. Pain, eſpecially inflammatory pain, always ariſes from too great a tenſion of the fibres, which emollient fomentations, by relaxing, take off. I greatly prefer humid fomentations, or cataplaſms, to any thing of a dry heat in an inflammatory pain of the breaſt or ſide, as they without all doubt much more efficaciouſly relax. Hippocrates himſelf adviſes againſt uſing the dry ſtupes ‖ too long, and recommends thoſe that are moiſt § near the criſis. Celſus ſays we ſhould uſe the dry and hot, when the inflammation is a little abated, and then paſs on to the malagmata.* I commonly apply an anodyne plaſter of opium ʒi, camphor ϑi, emplaſtr. e cymino, after due fomentations, with very good ſucceſs, but always firſt try the humid fotus. In very threatening circumſtances, fomentations alſo may be applied to the abdomen, inguina, &c. which, by taking down the too great ſtricture of the fibres in general, will leſſen the impetuoſity of the blood. Emollient baths would be more effectual, when they can be conveniently uſed. Hippocrates ſays they relieve pains of the back, ſides, and breaſt. Their exceeding good effects in colics, and nephritic paroxyſms, ſhould prompt us to try them in very violent obſtinate pleuriſies, and a paraphrenitis.—The ancients ſuppoſed that warm applications digeſted the matter, and promoted expectoration; the latter they certainly do by eaſing the pain, and giving more liberty to the intercoſtal muſcles, &c. to expand and contract the thorax, and pump up the matter; hence in pleuro-pneumonics, they cannot but be of very conſiderable ſervice, even in that reſpect.

Nitrous medicines, with a cooling, emollient, diluting regimen, ſhould

* Lib. IV. Cap. vi.
† De Victu acutor. Sect. lii.
‡ Lib. III. de Morbis, Sect. xvij.
§ De Vict. acut. Sect. xi, xii. Edit. Linden.
‖ De Vict. acut. Sect. xii.
§ Lib. III. de Morbis. Sect. xxiij.
* Lib. IV. Cap. 6.

be forthwith entered upon. Thin whey, a decoction of barley and red-poppies, emulsions, and such like, answer all the intentions of drink; and nitre both cools and attenuates the blood. With these should be joined gentle anodynes, repeated as there may be occasion; elixir paregoricum and diacodium seem to me the most adapted. To these may be added spermaceti, a soft relaxing animal oil, very penetrating, though not heating; and where the rigidity of the fibres is very great, the cool vegetable oils, as of linseed or almonds, may be given with advantage. That an emollient relaxing method is indicated in the cure of pleurisies, is evident from hence, viz. that the strong and laborious persons, of very rigid fibres and dry constitutions, are most subject to this disease, and suffer most from it, and withal, that it rages most in cold and dry seasons.

The violence of pain unquestionably demands the use of opiates after bleeding, which, prudently interposed, are certainly of exceeding great service. As pain is a stimulus which greatly quickens the circulation, and heats the blood, and derives likewise more than natural to the pained part, it cannot but encrease the inflammation. A thorn in the flesh will cause some degree of fever, and an inflammation around it. Moreover, when a sharp cough attends, as in pleuro-peripneumonies, it should be mitigated by diacodium, or the like, else the great agitation it causes, will also encrease the inflammation. It is true, indeed, these demand some degree of caution and prudence in the use of them; therefore ever remember, before you enter upon them, the lancet is not to be sparingly used when the pain is very violent, the pulse very hard, quick, and tense, and the fever high.

The following instance shews what may and must be done sometimes in pleurisies and pleuro-pneumonies, when the attack is with extreme violence:

About four years since, a strong plethoric gentleman, about forty, was seized with a fever, and a violent pain in the side: he was immediately bled to sixteen or eighteen ounces: this abated the pain. He got up, sat by the fire in a smoaky chamber, drank near a quart of cold cyder, fell into a vast rigor, succeeded by a high fever, excessive pain of his side and breast, great difficulty of breathing, delirium, and the most incessant terrible cough I ever heard, which pumped up great quantities of fresh frothy blood. I was obliged to bleed him three times in twenty-four hours, and to give him seven grains of solid laudanum, besides two or three ounces of diacodium, in that short space of time; and this, and this only (for he would take no other medicine) happily recovered him. This indeed, is a very extraordinary instance: but the method which is above recommended, I have in a multitude of cases experienced to be very safe, and very effectual; infinitely more so, I think, than the *sanguis hirci*, *priapus tauri*, and the other whimsies which Helmont so greatly extols in appeasing the archæus, and quieting the pleura furens; * notwithstanding he is so very arch and severe on the sons of Galen and the schools, for attempting to cure pleurisies by bleeding.

In several epidemic pleurisies, I have known easy sweating, especially after the third or fourth day, of very great advantage; and with this view, have often added camphor to the nitre, &c. which, joined with small doses of elixir paregoricum out of thin warm whey, or ptisan, seldom or never fails of answering the intention. In chilly wet seasons, and persons formerly subject to catarrhal or cold rheumatic disorders, this is a very proper method, when a due quantity of blood hath been previously drawn off. In such cases also gentle purging

* Vid. Helmont. Pleura furens.

is

is useful. It is certain, from the best observations, that in some constitutions of the air, patients under pleuritic diseases will not bear the loss of much blood, particularly in continued wet foggy weather. In general we find they sustain the loss with much better effect, and less inconveniency, in a cold dry spring, than in a wet summer, or a rainy autumn. Nay, there are some pleurisies, at least vulgarly so called, that will admit of little or no bleeding, in which the pain of the side seems a mere symptom, not the disease; as the pains and soreness preceding or attending the putrid-malignant fever, small-pox, &c. are not properly rheumatic, but purely symptomatical. Such pains then arise from acrimony, not inflammation, and are to be cured by diluents, diaphoretics, eccoprotics, blistering, &c. not by bleeding, which is forbidden by the ancients where bile (by which they meant acrimony) is greatly predominant.

It was an observation of Asclepiades,* that the people of Rome and Athens did not bear bleeding in pleurisies and peripneumonies, as well as those about the Hellespont; the former lying to the South, and in a much more warm and moist air than the latter, who were much exposed to cold dry northerly and easterly winds. Hollerius makes the same observation with respect to the people of Paris, who lie pretty cold, and the inhabitants of the southern parts of France, who are more to the south, and much warmer.† Indeed, within a much narrower compass, I have once and again taken notice, than an epidemic disorder, which in low warm places near the sea proved only a slight catarrhal fever, and scarce required any manner of bleeding, hath, in the neighbouring cold and high exposures, been attended with severe pleuro-peripneumonic symptoms, and demanded no small evacuation of blood. Without all doubt, the very constitution of the solids and fluids differs considerably, according to the different situation of the inhabitants. Upon the whole then, let me add this corollary, that in practice we not only ought to consider the peculiar nature of the epidemic, but also of the season, and the constitution of the patients.

* Vid. Cæl. Aurelian. Lib. II. Cap. xxii. de Morbis acutis & chronicis, Amst. 1722. 4to.

† Holler. in Aphorism. 2. Hippocr. Sect. 1.

APPENDIX.

A METHOD FOR PRESERVING THE HEALTH OF SEAMEN IN LONG CRUISES AND VOYAGES.

IT is well known what vaſt numbers of ſailors we have loſt within theſe few years, by terrible ſcorbutic diſorders, owing chiefly to bad proviſions, bad water, bad beer, &c. the unavoidable conſequence of long cruiſes and voyages: for the proviſions will naturally decay, the beſt beef and pork corrupt, the water ſpoil, and the beer (at leaſt ſuch as the navy is ſupplied with) will not keep good very long. Of courſe the long and conſtant uſe of ſuch proviſions muſt, by degrees, taint the juices of the body, produce great acrimony in the blood, and diſpoſe it daily more and more to a ſtate of putrefaction. Theſe effects will be conſiderably augmented, by living continually in a moiſt ſalt atmoſphere, and breathing the foul polluted air between decks. Conſtant experience ſhews this to be the caſe. I have known more than a thouſand men put aſhore ſick, out of one ſingle ſquadron, after a three months cruiſe, moſt of them highly ſcorbutic; beſides many that died in the voyage. The fleet returns to its port; freſh air, wholeſome liquor, freſh proviſions, eſpecially proper fruits and herbage, ſoon purify the blood and juices of the ſick, and reſtore their health. The freſh air, proviſions, fruits, and garden-ſtuff, which the Engliſh and Dutch meet with at St. Helena, and the Cape of Good Hope, are of the higheſt advantage to them in their Eaſt-India voyages, without which they always become extremely ſickly.

Phyſicians well know that the moſt effectual method of correcting an alcaleſcent acrimony of the blood, and of preventing the farther advances of putrefaction in the humours, is by vegetable and mineral acids, the former of which are much the ſafeſt, and may be given in draughts, the other only by drops.

That the ſtate of the blood in the common ſea-ſcurvy is of this nature, appears from the ſtinking breath of the ſick, their rotten corroded gums, high-coloured fœtid urine, ſordid ulcers, black, blue, and brown ſpots, and eruptions in the ſkin, frequent feveriſh heats, foul tongues, bilious and bloody dyſenteries, which more or leſs always attend it. Now it is alſo well known, that a vegetable aceſcent diet and regimen, freſh air, freſh proviſions, ſubacid and vinous drinks, are its certain and ſpeedy cure, when not very far advanced.—Apples, oranges, and lemons alone, have been often known to do ſurpriſing things in the cure of very deplorable ſcorbutic caſes, that aroſe from bad proviſions, bad water, &c. in long voyages.

But

But what will cure will prevent.—If therefore ſuch a diet and regimen can be uſed at ſea, it will prove a kind of a continual antidote to the rank putreſcent qualities of the common ſhips' proviſion, and correct (at leaſt very much leſſen) the ill effects: and it is eventually found, that the officers who carry wine, cyder, lemons, freſh proviſions, &c. are infinitely leſs affected with the ſcurvy, than the poor common ſailors who are not ſo provided.

Is it practicable then to introduce ſuch a general regimen into the navy? I think it is; and, from reaſon and experience, I recommend the following method:—

Let all ſhips, that are to proceed on a long cruiſe or voyage, be ſupplied with a ſufficient quantity of ſound generous cyder, the rougher (provided it is perfectly ſound) the better.

If apples are found of ſuch vaſt ſervice in the ſcurvy, ſurely the juice of them, when become a vinous liquor, cannot but be very ſalutary; and ſeems exceedingly well adapted, as a common drink, to correct, by its acidity, the alcaleſcent putrifying quality of bad corrupt proviſions. This cyder ſhould be at leaſt three months old before it is ſerved in, and quite fine. If it be too new, and foul, it is apt to give ſevere colics. It ſhould be racked off once at leaſt from its groſs ley into good and ſweet veſſels, which will contribute to its becoming fine, and prevent it from growing ropy, in which ſtate it is good for nothing. But if ſome of it ſhould turn to vinegar, which may frequently happen, it will ſtill be very ſerviceable; but it is found, when well managed, to keep good and ſound even to the Indies.

Every ſailor ſhould have at leaſt a pint of cyder a day, beſides beer and water: and I would adviſe alſo a frequent and free uſe of vinegar in the ſeamen's diet; eſpecially when the proviſions begin to grow rancid. Beſides this, the decks, &c. ſhould be frequently waſhed or ſprinkled with vinegar, after having drawn the groſs and foul air out of the ſhip by Mr. Sutton's contrivance, or by Dr. Hales's ventilators, which ſhould be done once at leaſt every day.

In autumnal cruiſes a quantity of apples might be alſo carried, which, when well choſen, and well put up in dry tight caſks, will keep very good for two or three months. Even lemons and oranges, wrapped in flannel (or ſomething that will imbibe their exhaling moiſture) kept in cloſe dry veſſels, and pretty cool, may be preſerved a long while alſo. If this is not ſo feaſible, a mixture of lemon-juice and rum (ſhrub, as they call it) may be carried in any quantity; as it will keep a long time, and would prove infinitely more wholeſome than the naſty firey poiſonous ſpirits, which are dealt about ſo largely in the navy and elſewhere. By the bye, nothing would more effectually correct the pernicious quality of theſe ſpirits than lemon-juice.

In the caſe of ſtinking water, juice of lemon, elixir of vitriol, or vinegar, ſhould be always mixed with it, which will render it much leſs unwholeſome. The Roman ſoldiers drank *poſca* (viz. water and vinegar) for their common drink, and found it very healthy and uſeful.

Elixir of vitriol and vinegar are already allowed to the navy in large quantities, and have been found greatly ſerviceable. And there was lately an order iſſued for ſupplying the ſhips of war with cyder alſo, which I am morally certain will be of the higheſt advantage, if properly and honeſtly managed. Indeed it hath already been actually found ſo in ſome few men of war, and other ſhips, where it hath been tried, even though in ſmall quantities. Let me add, that the prize wines, which are commonly low and thin, and very frequently ſpoil by keeping, might be diſtributed amongſt the ſailors (eſpecially

in

in want of cyder) to very good purpoſe.

This indeed may be deemed a very expenſive project; but, where the lives of ſo many brave and uſeful people are in the caſe, I think the coſt ſhould by no means come into competition with the advantage that may be received from it. The Romans conſtantly carried with them vinegar and wine in their fleets and armies, and the common ſoldier and ſailor daily partook of both: nay, they were at many other conſiderable expenſes to preſerve the health of their armies, &c. Now, if that glorious prudent people thought the life of a Roman ſoldier ſo valuable, and were at ſuch expenſe to preſerve it, why ſhould not we have as much regard to that of a Britiſh ſailor, who is altogether as brave and as uſeful to the commonwealth?

I cannot conclude without taking notice, that the uſual method of impreſſing ſeamen on their return from long and tedious voyages, void of neceſſaries, chagrined at not ſeeing their friends and families, and moſt commonly in a bad ſtate of health, and not allowed time and opportunity to recover it, hath been the bane of thouſands: and I could wiſh, for the honour of the nation, a method of manning our fleet could be found out more conſiſtent with common humanity and Britiſh liberty.

PLYMOUTH,
Sept. 30, 1747.

A

DISSERTATION

ON THE

MALIGNANT-ULCEROUS SORE-THROAT.

SINCE the publication of my ESSAY ON FEVERS, I have had frequent opportunities of making obſervations on a diſeaſe of the putrid-malignant kind, which abundantly confirm my notions of the cauſe and cure of malignant-peſtilential fevers; I mean what is called the *Angina maligna*, or *Ulcerous Sore-Throat*, which hath appeared up and down this kingdom for ſeveral years, in ſome places very common and exceedingly fatal, eſpecially to children.

The firſt accurate account we had of this diſtemper in England, was from the very ingenious Dr. Fothergill, in 1748. But ſeveral of the Spaniſh and Italian phyſicians have deſcribed exactly ſuch a kind of diſeaſe, as raging with great violence and mortality in Spain, and ſeveral parts of Italy, in the beginning of the laſt century.—Perhaps the Syrian and Egyptian ulcers mentioned by Aretæus Cappadox, and the peſtilent-ulcerated tonſils we read of in Ætius Amidenus, were of this nature; and truly ſome of the ſcarlet fevers mentioned by Morton, ſeem not much unlike it.

It is not above ſix or ſeven years ſince I met with it in this town and neighbourhood, though it raged with great fatality in and about Loſtwithiel, St. Auſtle, Fowey, and Liſkeard, a year or two before. From the latter part of the year 1751 to May 1753, it was very common in this town and places adjacent, eſpecially in the year 1752; and not only carried off children, but ſeveral adults.

As a faithful and accurate hiſtory of diſeaſes, their various ſymptoms, and method of cure, is the moſt effectual way of promoting the art of healing, phyſicians ſhould deſcribe, with the utmoſt care, the diſeaſes they would treat of, and the good and bad effects of any method, or medicines, they have uſed to remove them. But in a more particular manner is this neceſſary, when any new or uncommon diſtemper occurs, of which the peculiar pathognomonic and diagnoſtic ſigns ſhould be carefully laid down, and a particular account given of what evacuations, regimen, and medicines, were uſeful or hurtful in it. And this method I ſhall endeavour to purſue with the utmoſt attention in the following account.

A vaſt quantity of rain fell during the year 1751; the ſummer particularly was in general uncommonly wet, cold, and frequently ſtormy. At the beginning of June, however, we had exceeding hot weather, and ſome very ſultry days alſo in July and Auguſt; the atmoſphere was almoſt always thick

thick and moiſt, but the barometer low commonly. The fruits of the earth were crude, watery, and inſipid; the harveſt was exceſſively bad, and the grain of all kinds ſuffered greatly. Notwithſtanding this we had but little ſickneſs, at leaſt no very epidemical diſtemper; but the ſmall-pox (brought in by Conway's regiment, in May) ſpread in this town conſiderably in July and Auguſt; and there were then ſeveral putrid and miliary fevers in the ſouthern parts of this county. Indeed, though we were not here very ſickly, yet hypochondriacal and hyſteric diſorders greatly prevailed, and there was a kind of univerſal inactivity and lowneſs of ſpirits every where.

The ſmall pox became much more common in the autumn, and of a much worſe kind than they were at their firſt appearance, and about the midwinter were very epidemic and fatal. In the mean time, there were abundance of catarrhs, mucous and inflammatory ſore-throats, ſome pleuriſies, and peripneumonies; and commonly eruptions of the eryſipelatous or puſtular kind, attended all theſe diſorders.

The weather ſtill continued wet, and often very boiſtrous; the wind various. December was a cold month, but wet from the 15th to the 25th. The ſame diſeaſes continued, and, about the end of the year, were ſeveral malignant-ulcerous ſore-throats up and down.

The year 1752 began cold, wet, and frequently ſtormy; the wind moſt commonly from the eaſt, verging however conſiderably, now to the north, now to the ſouth; the barometer often very low, though at the beginning of January very high, with ſharp froſt. The ſmall-pox continued epidemic, often crude, cryſtalline, and undigeſted to the very end; ſometimes very confluent, ſmall, and ſeſſile; ſome black and bloody, and now and then attended with petechiæ.—Pleuro-peripneumonies and rheumatiſms were not uncommon; catarrhal and mucous ſquinſies, with much cough and a large thin ſpitting, were very rife; and now alſo there were ſeveral malignant dangerous ſore-throats, with no ſmall degree of fever.

Both at the beginning and end of February the mercury was high, and the air clear, dry, and froſty; but, from the 8th to the 21ſt, there was much rain, with the wind generally at ſouth. Many ſmall-pox were in the town, though few in the neighbourhood; ſeveral pleuriſies, peripneumonies, and rheumatiſms, a vaſt quantity of catarrhal mucous ſore-throats, and many inflammatory ſquinſies, and ſtill ſome of the malignant kind.

The weather was pretty cold and dry in March, eſpecially at the beginning and latter end, and the barometer high; at no time very low. The ſmall-pox grew more mild, and much leſs frequent; the other diſeaſes alſo leſs common, but more inflammatory; no malignant ſore-throats; many were ſeverely tormented with coughs and obſtinate aſthmatic diſorders. The blood now drawn was commonly more denſe and viſcid than it had been for many months.

The north-eaſt wind prevailed at the beginning of April, and rendered the air dry, clear, and pretty cold; the baroſcope high. A ſhowery ſeaſon ſucceeded for four or five days, and then the dry north-eaſt wind returned; from the 21ſt it was W.N.W. The ſmall-pox ſtill up and down, ſome of a bad ſort; many pleuriſies; and peripneumonies, rheumatiſm, jaundice, and dropſy frequent; ſevere coughs every-where; a vaſt many are troubled with worms, even adults as well as children.

Though we had ſome agreeable weather in May, the ſummer was wet, cold, and uncomfortable; the atmoſphere thick and foggy, the barometer ſeldom high, the S.W. and N.W. winds were much the moſt frequent. The fruits of the earth did not ripen well, but were watery and inſipid; a

bad harveſt, bad grain. A great dejection of ſpirits, liſtleſſneſs, and laſſitude, were univerſally complained of. The ſmall-pox became much more numerous in June, and were epidemic all the ſummer, and rather of a worſe kind than in the ſpring, not only here, but every-where in the neighbourhood; they were frequently confluent, very ſmall, and ſometimes black, attended with hæmorrhages of the noſe, eſpecially in children; but the petechiæ were much leſs common than I expected; ſometimes they were very crude, cryſtalline, and indigeſted, running into large bliſters, eroding the ſkin greatly. Rheumatiſms, gout, and coughs, were in vaſtly greater plenty than uſual at this time of the year.

Now alſo, exactly ſuch a kind of fever as I called, in my firſt volume of Epidemics, *febris anginoſa*, raged up and down with great violence, attended with ſcarlet or puſtular eruptions, and ſucceeded with great itching and deſquamation of the cuticle. In this the pulſe was commonly hard, quick, and ſmall, the breathing hot and laborious, with great oppreſſion on the præcordia; the urine ſometimes crude and pale, ſometimes high-coloured and turbid, but without ſediment; a delirium generally came on ſoon. The ſick commonly bore bleeding at the beginning with advantage, and the blood was often ſizy, though much leſs ſo in general, than ſquinſies of the truly inflammatory kind; they very ſeldom, however, admitted of large bleeding, ſcarce, indeed, of a ſecond.

In all ſorts of fevers, there was a ſurpriſing diſpoſition to eruptions of ſome kind or other, to ſweats, ſoreneſs of throat and aphthæ. The ſmall-pox were more fatal in Auguſt, and ſometimes attended with a very dangerous ulceration in the throat, and difficulty of ſwallowing. Indeed the malignant-ulcerous ſore-throat was now alſo frequent, probably ſometimes complicated with the ſmall-pox.

The autumn was much more fair and comfortable than the ſummer, particularly the month of October was for the greater part beautiful and ſerene; the mercury high; however, the atmoſphere was generally thick, and ſometimes very moiſt, the wind commonly from the eaſtern quarters. November was leſs wet and ſtormy than uſual, and in general warm; the barometer pretty high, but the air thick and humid. At the beginning of December the quickſilver was exceeding high, the air cold and dry, wind E. N. E. but from the 6th to the 26th very wet and foggy, ſometimes boiſtrous, and the barometer ſunk very much; towards the end the eaſterly wind returned, raiſed the mercury, and reſtored fine cold weather.

During this period, the ſmall-pox continued epidemic every-where, and though ſomewhat more mild in September and October, yet here and there they were very confluent, attended with ſpots and hæmorrhages of the noſe. In December they were often crude, numerous, and undigeſted to the laſt, running into very large veſications, deeply eroding the ſubjacent parts: the cruſts of the black confluent many times remained for at leaſt thirty days after the eruption. The anginoſe fever alſo ſtill continued, and we had ſeveral of the malignant ſore-throats in September, many more in October; in November and December they were exceeding common in this town, at the dock, and all around us, and carried off a great many adults, as well as children. During this time likewiſe catarrhal mucous ſore-throats were innumerable, but with little ſeverity or danger. In October particularly, after a few days of foggy, ſtormy, rainy weather, we had from the 12th to the 16th very cold mornings, and immenſe hoar froſts, with ſome ice, in which time hundreds of people were

at once ſeized with a cough, ſore-throat, and a great defluxion from the noſe, eyes, and mouth, attended with a ſlight fever, and more or leſs of a raſh, ſeveral with great fluxes of the belly. Coughs, catarrhs, rheumatiſms and fluxes, were exceſſively common in November and December, eſpecially catarrhal coughs, with which almoſt every one was in ſome degree troubled; and yet there were few peripneumonies or pleuriſies; however, abundance fell into a pulmonary phthiſis, and many died tabid.

For many months paſt we had ſcarce the ſlighteſt fever, but it was attended with a ſore-throat, aphthæ, and ſome kind of cuticular eruption, and that too even in pleuritic and peripneumonie diſorders, ſo greatly did the conſtitution of the air, &c. ſeem diſpoſed to produce eruptions in all ſorts of feveriſh indiſpoſitions.—The blood drawn from the diſeaſed, during all this time, hath been very rarely viſcid, but generally florid ſeemingly, eſpecially at the very beginning of the malady, and of a very looſe texture.

Thus ended the year 1752.—The following part of the winter, and ſucceeding ſpring, was very cold and wet; the cold weather continued till the middle of May, and made a very backward ſpring. Then came on very fine hot weather, and we had the warmeſt and moſt beautiful ſummer that hath been known for many years. The ſmall-pox, and both catarrhal and malignant ſquinſies, grew leſs frequent, and leſs fatal, from January to May, when both entirely ceaſed. As the ſpring advanced we had ſeveral pleuriſies, peripneumonics, and a vaſt number of catarrhal diſorders. The blood now drawn, was much more denſe and viſcid, in general, than had been obſerved for many months before.

I have given this ſhort account of the conſtitution of the air and diſeaſes during this period, in which ſore-throats of one kind or another were much more frequent than I ever before remember, and with which alſo cuticular eruptions of various ſorts, were exceedingly common, and this too even in the ſlighteſt fevers that happened. And this I have particularly done, that perhaps from it ſome rational conjectures of the cauſe and nature of ſuch diſorders may be made. Did the long cold and wet ſeaſons occaſion them, by hindering a due and regular perſpiration? The ſuppreſſed perſpirable grows very acrid, and productive, at length, of a variety of diſeaſes, particularly ſuch as paſs under the general name of ſcorbutic, as well as more immediately of catarrhs, ſquinſies, peripneumonies, fluxes, colics, &c. which are notoriouſly the effects of ſuppreſſed perſpiration. But my preſent deſign is not to enter into diſquiſitions of this nature. I proceed, therefore, to give the moſt exact account I poſſibly can of the malignant-ulcerous ſore-throat, as it raged here during the period above deſcribed, eſpecially in 1752; to which I ſhall ſubjoin the method of cure I found moſt ſucceſsful.

The attack of this diſeaſe was very different in different perſons. Sometimes a rigor, with ſome fulneſs and ſoreneſs of throat, and painful ſtiffneſs of the neck, were the very firſt ſymptoms complained of. Sometimes alternate chills and heats, with ſome degree of head-ach, giddineſs, or drowſineſs, uſhered in the diſtemper. It ſeized others with much more feveriſh ſymptoms, great pain of the head, back, and limbs, a vaſt oppreſſion of the præcordia, and continual ſighing. Some grown perſons, on the contrary, moved about for a day or two, neither ſick or well, as it were, but under uneaſineſs and anxiety till they were obliged to lie for it. Thus various was the diſeaſe at the onſet. But it commonly began with chills and heats, load and pain of the head, ſoreneſs of throat, and

and hoarſeneſs, ſome cough, ſickneſs at ſtomach, frequent vomiting and purging, in children eſpecially, which were ſometimes very ſevere, though a contrary ſtate was more common to the adult. There was in all a very great dejection of ſpirits, very ſudden weakneſs, great heavineſs on the breaſt, and faintneſs from the very beginning. The pulſe in general was quick, ſmall, and fluttering, though ſometimes heavy and undoſe. The urine commonly pale, thin, and crude; however, in many grown perſons, in ſmall quantities, and high coloured, or like turbid whey. The eyes were heavy, reddiſh, and, as it were, weeping; the countenance very often full, fluſhed, and bloated, though ſometimes pale and ſunk.

How ſlight ſoever the diſorder might appear in the day-time, at night the ſymptoms became greatly aggravated, and the feveriſh habit very much encreaſed; nay, ſometimes a delirium came on the very firſt night, and this exacerbation conſtantly returned in the evening, through the whole courſe of the diſeaſe. Indeed, when it was conſiderably on the decline, I have been often pretty much ſurprized to find my patient had paſſed the whole night in a phrenzy, whom I had left tolerably cool and ſedate, in the day.

Some few hours after the ſeizure, and ſometimes cotemporary with it, a ſwelling and foreneſs of the throat was perceived, and the tonſils became very tumid and inflamed, and many times the parotid and maxillary glands ſwelled very much, and very ſuddenly, even at the very beginning, ſometimes ſo much as even to threaten ſtrangulation. The fauces alſo very ſoon appeared of a high florid red, or rather of a bright crimſon colour, very ſhining and gloſſy, and moſt commonly on the uvula, tonſils, velum palatinum, and back part of the pharynx, ſeveral whitiſh, or aſh-coloured ſpots, appeared ſcattered up and down, which oftentimes encreaſed very faſt, and ſoon covered one or both the tonſils, uvula, &c. theſe in event proved the ſloughs of ſuperficial ulcers, which ſometimes, however, eat very deep into the parts. The tongue at this time, though only white and moiſt at the top, was very foul at the root, and covered with a thick yellowiſh or brown coat.—The breath alſo now began to be very nauſeous, which offenſive ſmell encreaſed hourly, and in ſome became at length intolerable, and that too ſometimes even to the patients themſelves.

The ſecond or third day, every ſymptom became much more aggravated, and the fever much more conſiderable, and thoſe that had ſtruggled with it tolerably well for thirty or forty hours, were forced to ſubmit. The reſtleſſneſs and anxiety greatly encreaſed, as well as the difficulty of ſwallowing. The head was very giddy, pained, and loaded; there was generally more or leſs of a delirium, ſometimes a pervigilium, and perpetual phrenzy, though others lay very ſtupid, but often ſtarting and muttering to themſelves. The ſkin was very hot, dry, and rough; there was very rarely any diſpoſition to ſweat. The urine pale, thin, crude, often yellowiſh and turbid. Sometimes a vomiting was urgent, and ſometimes a very great looſeneſs, in children particularly. The ſloughs were now much enlarged, and of a dark colour, and the ſurrounding parts tended much more to a livid hue. The breathing became much more difficult, with a kind of rattling ſtertor, as if the patient was actually ſtrangling, the voice being exceeding hoarſe and hollow, exactly reſembling that from venereal ulcers in the fauces; this noiſe in ſpeaking and breathing was ſo peculiar, that any perſon in the leaſt converſant with the diſeaſe, might eaſily know it by this odd noiſe; from whence, indeed, the Spaniſh phyſicians gave it the name of

garotillo,

garotillo, expreſſing the noiſe ſuch make as are ſtrangling with a rope. I never obſerved in one of them the ſhrill barking noiſe that we frequently hear in inflammatory ſquinſies. The breath of all the diſeaſed was very nauſeous, of ſome inſufferably fœtid, eſpecially in the advance of the diſtemper to a criſis; and many about the fourth or fifth day ſpit off a vaſt quantity of ſtinking purulent mucus, tinged ſometimes with blood, and ſometimes the matter was quite livid, and of an abominable ſmell.—The noſtrils likewiſe in many, were greatly inflamed and excoriated, continually dripping down a moſt ſharp ichor, or ſanious matter, ſo exceſſively acrid, that it not only corroded the lips, cheeks, and hands of the children that laboured under the diſeaſe, but even the fingers and arms of the very nurſes that attended them. As this ulceration of the noſtrils came on, it commonly cauſed an almoſt inceſſant ſneezing in the children, but few adults were affected with it, at leaſt to any conſiderable degree. It was ſurpriſing what quantities of matter ſome children diſcharged this way, which they would often rub on their faces, hands, and arms, and bliſter them all over. A ſudden ſtoppage of this rheum from the mouth and noſtrils, actually choaked ſeveral children; and ſome ſwallowed ſuch quantities of it, as occaſioned excoriations of the inteſtines, violent gripings, dyſentery, &c. nay, even excoriations of the anus and buttocks. Not only the noſtrils, fauces, &c. were greatly affected by this extremely-ſharp matter, but the wind-pipe itſelf was ſometimes much corroded by it, and pieces of its internal membrane were ſpit up, with much blood and corruption, and the patients lingered on for a conſiderable time, and at length died tabid, though there were more frequent inſtances of its falling more ſuddenly and violently on the lungs, and killing in a peripneumonic manner.

I was aſtoniſhed ſometimes to ſee ſeveral ſwallow with tolerable caſe, though the tumour of the tonſils and throat, the quantity of thick mucus, and the rattling noiſe in breathing, were very terrible, which I think pretty clearly ſhews that this malignant ſquinſy was more from the acrimony and abundance of the humours, than the violence of the inflammation.

Moſt commonly the angina came on before the exanthemata; but many times the cuticular eruption appeared before the ſore-throat, and was ſometimes very conſiderable, though there was little or no pain in the fauces: on the contrary, a very ſevere angina ſeized ſome patients that had no manner of eruption, and yet even in theſe caſes, a very great itching and deſquamation of the ſkin ſometimes enſued; but this was chiefly in grown perſons, very rarely in children. In general, however, a very conſiderable efflorescence broke out on the ſurface of the body, particularly in children, and it moſt commonly happened the ſecond, third, or fourth day; ſometimes it was partial, ſometimes it covered almoſt the whole body, though very ſeldom on the face. Sometimes it was of an eryſipelatous kind, ſometimes more puſtular; the puſtules were frequently very eminent, and of a deep, firey, red colour, particularly on the breaſt and arms, but oftentimes they were very ſmall, and might be better felt than ſeen, and gave a very odd kind of roughneſs to the ſkin. The colour of the efflorescence was commonly of a crimſon hue, or as if the ſkin had been ſmeared over with juice of raſberries, and this even to the fingers' ends; and the ſkin appeared inflamed and ſwoln, as it were; the arms, hands, and fingers, were often evidently ſo, and very ſtiff, and ſomewhat painful. This crimſon colour of the ſkin ſeemed indeed peculiar to this diſeaſe. Though the eruption ſeldom failed of giving ſome manifeſt relief to the patient, as

to

to anxiety, ſickneſs at ſtomach, vomiting, purging, &c. yet I obſerved an univerſal firey eruption on ſome perſons, without the leaſt abatement of the ſymptoms; nay, almoſt every ſymptom ſeemed more aggravated, particularly the fever, load at breaſt, anxiety, delirium; and I knew more than one or two patients die in the moſt raging phrenſy, covered with the moſt univerſal firey raſh I ever ſaw; ſo that, as in the highly-confluent ſmall-pox, it ſeemed only to denote the quantity of the diſeaſe, as I may term it.

I had under my care a young gentleman, about twelve years of age, whoſe tongue, fauces, and tonſils, were as black as ink, and he ſwallowed with extreme difficulty; he continually ſpit off immenſe quantities of a black, ſanious, and very fœtid matter, for at leaſt eight or ten days. About the ſeventh day, his fever being ſomewhat abated, he fell into a bloody dyſentery; though the bloody, ſanious, fœtid expectoration, ſtill continued with a moſt violent cough. He at length indeed got over it, to the very great ſurpriſe of every one that ſaw him.

Now, in this patient, as ſevere and univerſal a raſh broke out upon him the ſecond and third day as I ever met with; and the itching of the ſkin was ſo intolerable, that he tore it all over his body in a moſt ſhocking manner; yet this very great and timely eruption very little relieved his fever and phrenſy, or prevented the other dreadful ſymptoms mentioned.

An early and kindly eruption, however, was moſt commonly a very good omen, and, when ſucceeded by a very copious deſquamation of the cuticle, one of the moſt favourable ſymptoms that occurred; but, when the eruption turned of a duſky or livid colour, or prematurely or ſuddenly receded, every ſymptom grew worſe, and the utmoſt danger impended, eſpecially if purple or black ſpots appeared up and down, as ſometimes happened; the urine grew limpid, and convulſions came on, or a fatal ſuffocation ſoon cloſed the tragedy.

The diſeaſe was generally at the height about the fifth or ſixth day in young perſons; in the elder not ſo ſoon; and the criſis many times was not till the eleventh or twelfth, and then very imperfect: ſome adults, however, were carried off in two or three days, the diſtemper either falling on the lungs, and killing in a peripneumonic manner, or on the brain, and the patient either died raving or comatoſe. In ſome the diſeaſe brought on a very troubleſome cough, purulent expectoration, hemoptoe, and hectic, in which they lingered on for ſeveral weeks, and then died tabid.

If a gentle eaſy ſweat came on the third or fourth day, if the pulſe became more ſlow, firm, and equal, if the ſloughs of the fauces caſt off in a kindly manner, and appeared at the bottom tolerably clean and florid; if the breathing was more ſoft and free, and ſome degree of vigour and quickneſs returned in the eyes, all was well, and a ſalutary criſis followed ſoon by a continuance of the ſweat, and a turbid, ſubſiding, farinaceous urine, a plentiful expectoration, and a very large deſquamation of the cuticle.

But if a rigor came on, and the exanthemata ſuddenly diſappeared, or turned livid; if the pulſe grew very ſmall and quick, and the ſkin remained hot and parched, as it were, the breathing more difficult, the eyes dead and glaſſy, the urine pale and limpid, a phrenſy or coma ſucceeded, with a coldiſh clammy ſweat on the face or extremities, life was deſpaired of, eſpecially if a ſingultus and choaking, or gulphing in the throat, attended with ſudden, liquid, involuntary, livid ſtools, intolerably fœtid.

In ſome few patients I obſerved, ſome time before the fatal period, not

not only the face bloated, fallow, ſhining, and greaſy as it were, but the whole neck vaſtly ſwoln, and of a cadaverous look, and even the whole body became, in ſome degree, œdematous, and the impreſſion of a finger would remain fixed in a part, the ſkin not riſing again as uſual; an indication that the blood ſtagnated in the capillaries, and that the elaſticity of the fibres was quite loſt.

As there were ſo many different kinds of ſquinſies and eruptive diſorders during the period in which the malignant-ulcerous ſore-throat raged; the likeneſs of the ſymptoms, at the very beginning of theſe various diſeaſes, made it not a little difficult, to the younger and leſs experienced practitioners eſpecially, to know what methods to purſue at the onſet, particularly as to the common evacuations; ſeeing it was now certain, from ſufficient experience, that in what is called the malignant-ulcerous ſore-throat, bleeding and purging, to any degree at leaſt, were utterly improper.

Though I really think our gentlemen in the medical way, that practiſe in this part of the kingdom, are in general as careful, capable, and judicious, as in moſt parts of England, yet I took ſome pains with them to make them comprehend the nature of this ſingular and uncommon diſtemper, and to diſtinguiſh it aright from ſome other reigning diſorders, that bore no ſmall reſemblance to it: and having deſired them to attend to the ſmall, quick, unequal, fluttering pulſe, at the attack of this malignant ſquinſy, though indeed it was ſometimes full and undoſe, but even then heavy and unequal—to the ſudden great dejection of ſpirits and ſtrength—perpetual anxiety, ſighing, and great oppreſſion on the præcordia—heavy, dull, watery, and as it were weeping eye—pale, crude, thin urine, though often turbid, like whey—to the whitiſh but commonly moiſt tongue, though conſiderably furred near the root—to the ſhining crimſon colour of the fauces, with interſperſed white or aſh-coloured ſpots or blotches, with a nauſeous and ſometimes very fœtid breath—to the ſcarlet or crimſon efflorescence (in ſome eryſipelatous, in others puſtular) on the hands, arms, neck, breaſt, &c.; ſymptoms that attended this diſeaſe even on the very firſt days; they diſtinguiſhed better, proceeded with more caution, and with greater ſucceſs.

I met with too many inſtances before, of raſh large bleeding and purging in this diſtemper; nay, ſome were weak enough to tell me, the blood they had drawn was very fine and rich. Florid, truly, I found it, as lamb's blood, but ſo ſoft and looſe that you might cut it with a feather, giving off little or no ſerum, but having exactly ſuch an appearance as when ſpirit of hartſhorn is poured to the blood juſt as it runs from the vein, which prevents its natural coaggulation.

I will not ſay but that, in ſome plethoric adult perſons, ſome blood may be drawn at the very beginning of this diſeaſe, and I have in ſome few ordered it with advantage, particularly as to the anginoſe ſymptoms, and where the difficulty of breathing alſo was conſiderable; but I muſt ſay, a repetition of the bleeding to any conſiderable degree is extremely detrimental, where the firſt blood eſpecially was of ſuch a looſe and ſoft texture; for the ſecond or third will be always found a mere ſanious gore, as I have too often noted; nay, ſometimes I have obſerved the firſt blood drawn covered with a very thin, whitiſh, or lead-coloured ſkin, pretty tenacious; but immediately underneath it was a greeniſh ſoft kind of jelly, and at bottom a very looſe black craſſamentum, ſcarce at all cohering.—This appearance of the blood, however, as much forbids farther bleeding as that above deſcribed, and is moſtly obſerved when there is a throbbing pulſe, and a great heat at the acceſs of the diſtemper. I profeſs I was myſelf not a little miſtaken in two or three caſes at the firſt breaking out of this fever; one or them I took for a

true peripneumony, but the ſore-throat, ſcarlet eruption, ſtench of the breath, and even petechiæ, very ſoon coming on, too plainly convinced me what was in truth the diſeaſe.

I have very often met with this buffy or fizy appearance of the blood in the beginning of malignant fevers, and yet blood, drawn two or three days after from the very ſame perſons, hath been quite looſe, diſſolved, and ſanious, as it were. Too many inſtances of this very lately occurred to me amongſt the French captives here, who died by dozens of a contagious peſtilential fever, very frequently attended with petechiæ and a bloody dyſentery. In this fever (as well as all others) the French ſurgeons bled of courſe every day, or at leaſt every other day. And I ſeveral times ſaw the blood of ſome of the officers (thus treated) a mere ſanious gore on the third or fourth bleeding, though conſiderably fizy at the firſt. And yet ſo prepoſterous was their practice, that, at the ſame time they were ſo buſy with the lancet, they gorged their patients with the ſtrongeſt bouillon that beef, mutton, &c. could make, and this too though they were in a conſtant delirium, were covered with black or purple ſpots, and had their tongues as black as ink, and as dry and rough as a pumice-ſtone. I am very certain great numbers fell a ſacrifice to this abſurd practice.

This buffy appearance of the blood, at the very beginning of contagious peſtilential fevers, doth not invalidate what I have ſaid in my Eſſay on Fevers, of the effect of contagious effluvia on the blood in ſuch fevers, but rather confirms it; tho' they tend to diſſolve, and actually at length to deſtroy, the craſis of the blood, yet perſons of a very viſcid denſe ſtate of blood, may be ſeized with a contagious malignant fever, and the blood may appear very fizy and buffy on bleeding, at the very attack, but notwithſtanding this, the action of the contagious ferment (if I may be allowed the expreſſion) will more and more diſſolve the blood, and at laſt render it a mere ſanious putrilage, and ſo it will appear on ſubſequent bleedings. And therefore where there is juſt reaſon to fear a contagious malignity in a fever, we ſhould proceed with the utmoſt caution as to repeated bleeding, eſpecially as it will be conſtantly found that the pulſe, as well as the ſtrength, ſink vaſtly after the ſecond or third bleeding, and truly ſometimes very ſurpriſingly after the firſt.

But to return to my ſubject, whenever I was called to perſons ſeized with this malady, at the very beginning I generally, inſtead of bleeding, ordered a clyſter of milk, ſugar, and ſalt, to be injected to unload the inteſtines, eſpecially if the patient was coſtive. But when a purging attends the attack, a few grains of torrefied rhubarb, with ſpecies e ſcordio, decoct. alb. &c. are proper; and if the diarrhœa is profuſe, a ſpoonful or two of decoct. fracaſtorii Fulleri may be frequently given, which is, in ſuch caſes, a very efficacious medicine.—If naufea and vomiting were urgent, I ordered a gentle emetic, eſpecially for adults, which was ſo far from aggravating the pain of the throat, as might be imagined, that it generally greatly relieved it; nay, in children, it was often neceſſary to make them puke frequently with a little oxymel. ſcillit. eſſence of antimony, or the like, otherwiſe the vaſt amaſs of tenacious mucus would quite choak them.

I then immediately put the patient on a ſaline mixture of ſalt of wormwood, or volatile ſalt of hartſhorn, and juice of lemon, with aq. alexeter. ſimpl. to which was added pulv. contrayerv. c. with a ſmall quantity of myrrh and ſaffron; or theſe laſt were given in a bolus, with a few grains of nitre if the fever ran pretty high; the addition alſo of a grain or two of camphor, was very uſeful for the adult, where the ſtomach would bear it;

it; when it would not, I uſed julep e camphor. or acetum camphoratum, with ſyrup of black currants, raſberries, or the like. The ſecond or third day, to the ſaline mixture, or a temperate cordial julep, I added ſome of my tinct.cort. peruvian alexipharmic, which, at this time of the diſeaſe, I found greatly preferable to the bark in ſubſtance, as it much more tends to promote the eruption of the exanthemata, and doth not by far ſo much hinder the coming on of ſweats, which at all times of this diſtemper are of the higheſt ſervice, provided they are gentle, uniform, and univerſal. Indeed it was with great difficulty the ſick could be brought to ſweat at all, but whenever moderate equally-diffuſed ſweats came on the third, fourth, or fifth day, or even later, they were critical and ſalutary, the urine grew immediately more concocted, and forthwith depoſited a very large quantity of clay-coloured or pale lateritious ſediment, though before crude, thin, or limpid; and therefore I always endeavoured to promote them by ſoft eaſy diaphoretics, and plentiful dilution with barley-water, thin whey, gruel, tea, or the like. I do not remember I had one patient miſcarry, who fell into ſoft, eaſy, univerſal ſweats, though the itching that ſometimes came on with them, was almoſt intolerable, but generally the ſweat ſoon abated the itching; at leaſt it conſtantly leſſened the fever, and the purging, if there was any, immediately ceaſed; the tumour of the neck, parotids, &c. ſubſided greatly alſo on the appearance of a kindly plentiful diaphoreſis. The ſweats were commonly very rank and fœtid, and that even in children.

I commonly gave elixir vitrioli with the tincture of the bark, except to very young children, which is an excellent anti-putreſcent alexipharmic; and I frequently ordered the elixir to be taken out of an infuſion of a roaſted Seville-orange, in claret, or red-port wine and water, which is a very pleaſant, and not an ineffectual compoſition.

There was an abſolute neceſſity of waſhing out the mouth and fauces very frequently. The gargle I commonly ordered, was a decoction of figs, red roſe-leaves, myrrh, and honey, in rough cyder, and a thin mucilage of quince-ſeeds, with ſyrup of raſberries, or black currants; and a little tincture of myrrh, *per ſe*, and ſpirit of vitriol, was to be taken by ſpoonfuls every now and then, eſpecially after gargling. And I alſo directed the fumes of red roſe-leaves, camomile-flowers, myrrh, and camphor, boiled in vinegar, to be drawn in with the breath very often, as hot as the patients could bear it, which gave very great and ſpeedy relief.

Though the ſwelling of the neck, parotid glands, &c. would ſometimes come on ſo ſudden, great, and violent, as to endanger a ſuffocation, yet in general I took this external tumour to be partly critical, and therefore endeavoured to promote it by acrid cataplaſms, bliſters, &c. nay, I have ſeveral times bliſtered the throat from ear to ear, with great ſucceſs. Theſe applications are uſeful in common quinſies, much more ſo in this, where the humours were ſo exceeding ſharp and malignant.

As there was frequently a very great tenſion and tumour of the belly, and at the ſame time alſo ſome degree of a ſuppreſſion of urine, an emollient fotus with ſome of the carminative ſeeds, or a few camomile-flowers boiled in milk and water, and a clyſter of the ſame with ſalt and ſugar, were neceſſary to promote the diſcharge of ſtool, wind, and urine, which gave immediate eaſe to the bowels, and withal, greatly facilitated the reſpiration, by giving a more free play to the diaphragm.—Indeed if the abdomen was very tenſe,

and the patient coſtive, about the fifth or ſixth day I generally gave a doſe of rhubarb, manna, or lenitive electuary, and after that, commonly the bark in ſubſtance; but I never ſo ordered it when the belly was very tumid and conſtipated, nor until ſome ſigns of coction, or a beginning deſquamation of the cuticle appeared; for I found my tincture, or a decoction of the bark, anſwer full as well, nay, better, as cauſing much leſs oppreſſion on the breaſt. I now alſo uſed a kind of reſin of the bark, made with ſpirits of wine, which I much prefer to the common extract, as it ſits much lighter on the ſtomach, and keeps much better; and therefore I think is more proper for an officinal medicine.

However improper purging might be at the beginning of this diſtemper, gentle eaſy catharties, as rhubarb, manna, &c. were neceſſary at the end to carry off the putrid colluvies of the inteſtines, which otherwiſe protracted the feveriſh heats, and occaſioned great weakneſs, want of appetite, tumid bellies, and great obſtructions of the glands; nay, I was often obliged to give repeated doſes of calomel to carry off the ſwellings of the parotid and maxillary glands, which otherwiſe frequently remained a long time much ſwoln and indurated, and at length ſometimes ſuppurated. Indeed I ſeveral times found it neceſſary to rub them with a mercurial unguent before I could diſſolve the tumours; calomel was alſo farther uſed in deſtroying the worms, with which a vaſt number were at this time eſpecially troubled. But in general, after a purge or two, the ſick ſoon recovered a keen appetite, ſtrength, and ſpirits. Many, however, required frequent purging, a continuance of the bark, æthiops-mineral, &c. for a conſiderable time, and then a courſe of aſſes-milk, and an open country-air to prevent a waſting hectic, of which ſome died, eight or ten weeks after the diſeaſe firſt ſeized them.

This was undoubtedly a fever of the malignant peſtilential kind, in which the blood became highly acrimonious, diſſolved, and putreſcent. That it was very greatly contagious no one doubts, as it very often infected whole families, eſpecially the younger perſons. And that this contagion generated a very great degree of acrimony in the blood, is moſt evident from the hiſtory of the diſeaſe. I have elſewhere noted that contagion acts in the blood as acrimony. Perhaps the comtagious miaſmata are only the highly exalted ſalino-ſulphureous particles and vapours that exhale from the diſeaſed infected body. It is well known the ſtench of putrid carcaſes, gangrened limbs, the polluted ſtinking air of jails, &c. deſtroy the craſis of the blood, and bring on malignant-peſtilential fevers; juſt as the putrid ſanies of a gangrened limb, abſorbed into the blood, brings on a fever of the ſame kind. It is certain the peſtilential effluvia in the true plague, bring on the moſt healthy, in a very few hours, a putrid diſſolution and gangrenous diſpoſition of the blood. And truly this malignant ſore-throat was in ſome caſes found very little inferior to it in virulence, not only the fauces, but the lungs, inteſtines, &c. having appeared gangrenous on diſſections, and the whole maſs of blood turned into a putrid gore. That an exceeding ſmall quantity of morbid matter will infect the whole maſs of blood, is moſt certain from the experiment of inoculating the ſmall-pox, in which it was found that very much leſs than a grain of the variolous matter, is fully ſufficient to bring on that diſtemper; nor is that ſurpriſing, when it is too well known what dreadful effects ariſe from the minuteſt quantity imaginable, of the virus of a viper, or mad dog.

Though this malignant-ulcerous ſquinſy ſeemed to be a diſeaſe *ſui generis*, yet it certainly had a very great reſemblance of the *febris anginoſa*, which

which I formerly described in my first volume *De Aere & Morbis Epidemicis*; and it is pretty remarkable, that such a kind of fever now also greatly prevailed up and down this part of the country; but indeed the anginose fever had very much more of an inflammatory nature than the malignant sore-throat now treated of, and the blood was commonly found much more dense and viscid in the former than in the latter, and of course would much better admit of bleeding. But in truth, it may be in this as in many other epidemic disorders, particularly the small-pox, measles, scarlet fever, &c. the general disease is greatly diversified by the particular constitution of the patients. Thus the variolous contagion, in one of strong elastic fibres and a very viscid dense blood, brings on a very high inflammatory fever. In another, of weak lax fibres and a loose dissolved blood, a low, putrid, nervous fever, not sufficient to protrude the pustules in a kindly manner, much less to bring them to a laudable maturation. In a word, the high inflammatory small-pox differ as much or more from the low malignant kind, as the febris anginosa from the pestilential-ulcerous sore-throat. How greatly doth the scarlet fever, described by Morton, differ from that mentioned by Sydenham! And indeed, although the same specific contagion always produces the same specific disease, yet it greatly differs in different persons, and is to be treated accordingly. There were certainly some of these ulcerous sore-throats, with a pretty smart fever, that bore bleeding at the beginning with advantage, and a much cooler regimen was necessary in some than in others; nay, I was obliged in several cases to give nitre with the diaphoretics. But I must confess, in general, much warmer medicines were necessary in this than in most other fevers; and that too sometimes when the heat was very considerable, otherwise the pulse would sink surprisingly, and an astonishing anxiety and oppression immediately succeeded. I have really been obliged to give such warm alexipharmics in this distemper (and that too many times to very young persons) as nothing but repeated experience could have induced me to order; as saffron, camphor, pulv. contrayerv. confect. cardiac. theriac. andromach. warm cyder, mulled wine and water, tinct. cortic. alexipharmic. &c. and this with a success that was well known, and justified the practice.

The word fever, as promiscuously used in the practice of physic, is not a little vague and undetermined. There are some disorders that pass under that general name, which are best cured even by raising the fever, to instance only in some quartan agues, and low nervous fevers. And the malignant squinsy here described is another species of fever; which evidently proves, that all acute diseases are not to be treated merely with evacuations and cooling medicines. Proper dilution is unquestionably useful in all fevers; but certainly some require more than barley-water and lemonade. But I have already said several things on this head in my Essay on Fevers; and shall at present only add a word or two on the use of volatile alcalious salts in fevers of the putrid-pestilential or petechial kind; in which I fear they are too often very improperly administered.

And here I must observe, that, in all fevers of this nature, the blood is always found too much broken and dissolved, and at length becomes highly acrimonious, and as it were sanious and putrid. Whatever therefore tends to promote the acrimony and dissolution of the blood, must be very apt to bring on such fevers, and encrease their malignity when they happen; but volatile alcalious salts do both in an eminent degree; for though they may retard the putrefaction of the flesh of animals, and even in some measure of the blood, out of the body (and so will arsenic, or sublimate corrosive) yet, mixed with the blood,

blood whilſt actually under the power of circulation and the vis vitæ, they certainly haſten its diſſolution and conſequent putrefaction. Even mixed with the blood out of the body, or rather as it runs from the vein, they quite deſtroy the texture of the blood-globules, nearly in the ſame manner as the poiſon of a viper, by diſſolving the copula or coheſion of the component particles; and the blood of the moſt robuſt (nay even the moſt buffy blood of horſes, as I have often tried) thus managed never concretes as uſual into a ſolid craſſamentum, and throws off its ſerum, but remains ever after a looſe diſſolved gore, or ſanies.

Now let me farther obſerve, that when theſe volatile alcalious ſalts (or ſpirits) are taken in large quantities, and frequently, even by perſons in health, they are well known to bring on feveriſh heats, hæmorrhages, ſpongy bleeding gums, ſtinking breath, rank urine, &c. ſymptoms that ſufficiently indicate a beginning diſſolution and putridity of the blood.

Moreover, theſe broken diſſolved blood-globules are very apt to enter into the ſerous and lymphatic arteries, and there, not finding a free paſſage through their ramifications, ſtagnate and corrupt, and at length even corrode theſe exceeding tender veſſels, particularly when ſaturated with acrimonious ſalts, which at the ſame time alſo greatly irritate theſe very minute canals, encreaſe the heat, and ſo cauſe a more ſpeedy corruption both of the humours and veſſels; and when the putrid lymph and ſerum is abſorbed into the maſs of blood, it greatly haſtens the general corruption.

Volatile alcalious ſalts, even applied externally to the ſkin, very ſpeedily corrode and ulcerate; and it is certainly fact, that given internally they heat vaſtly more, quantity for quantity, than the warmeſt vegetable alexipharmics; and that, I think, not ſo much by encreaſing the projectile force and circulation of the blood, as by cauſing an inteſtine motion and effervescence in it; for, by the moſt accurate experiments, it is found, that ſolutions of the volatile alcaline ſalts weaken the tone of the fibres and power of the veſſels, and conſequently the momentum of the blood in the regular courſe of circulation. And we eventually find, that, when the blood abounds with very acrid ſalts, the pulſe becomes weak, ſmall, quick, and fluttering, as in the highly ſcorbutic, and that corrupt acrimonious ſtate of blood which brings on the putrid fever, antecedent to ſome mortifications *ab interna cauſa*, as they call it; in both which the powers of nature ſink greatly, and particularly the ſtrength of the arterial vibrations, though they may encreaſe in quickneſs, to compenſate for the want of that natural vigour and fulneſs which is obſerved in a free and firm pulſation of an artery duly filled with blood, and properly actuated. The extraordinary bigneſs and flaccidity of the heart that is commonly noted in ſcorbutic and peſtilential caſes, are owing to the weakneſs and great relaxation of its muſcular fibres. That peculiar kind of biting heat, that we commonly feel on the ſkin of perſons labouring under putrid-malignant fevers, ſeems to ariſe from the abundance of acrid ſalts and ſulphurs in the blood and its inteſtine motion, and not from its encreaſed projectile force; for, on firſt touching the ſkin, the heat ſeems very little if at all above the natural, but, by continuing the finger a longer time on it, you are ſenſible of a diſagreeable ſcalding in it, which ſenſation even remains in the finger for ſome ſmall time after you have quite removed it from the ſick perſon. This Dr. Pringle hath judiciouſly noted in his excellent Treatiſe on the Diſeaſes of the Army; and Galen, as he candidly obſerves, long before him. This Monſieur Queſnoy calls *la chaleur d'acrimonie*, and very juſtly diſtinguiſhes it from *la chaleur d'inflammation*. The ſenſation, in truth, is as different as touching a very hot piece of dry wood, and dipping your finger into

tepid

tepid ſpirit of hartshorn. And I think this obſervation evidently proves the abundance of acrimonious ſalts thrown off by perſpiration in theſe very putrid fevers. That peculiar burning heat alſo, which the ſick often feel within in ſuch diſeaſes, though the external parts of the body are actually cold, probably ariſes from the ſame cauſe. And I cannot but think the heat, obſervable in fevers preceding and attending mortifications *ab interna cauſa*, is generated by the acrimony and inteſtine motion of the humours; not certainly from a rapid projectile motion, for the pulſe is then always found weak and ſmall, though quick. The ſurpriſingly ſpeedy and great ſtench, ſwelling, and ſanious hæmorrhages from all the outlets, of the bodies of ſuch as die in putrid-malignant fevers, are arguments of the great inteſtine motion, rarefaction, and acrimony of the humours. This was the caſe commonly of thoſe that died of the malignant anginoſe fever above deſcribed. I have known the whole body ſwell vaſtly, even to the ends of the fingers and toes, with a cadaverous lividity, though almoſt quite cold, and an intolerable ſtench, even before the perſon was actually dead, blood iſſuing at the ſame time from the ears, noſe, mouth, and guts; and this too where the pulſe had been very weak and ſmall, though exceeding quick, from the very beginning. Was not this from much air generated in the blood by the inteſtine motion, heat, and putridity, which are well known to generate air? Is not the emphyſema, obſervable in ſome ſphacelations, from the ſame cauſe?

But to proceed, if we conſider the generation and nature of animal ſalts, perhaps we ſhall ſee a little farther into this matter. The ſtrongeſt vegetable acids we take in with our food, are by the vis vitæ ſoon changed into a neutral, or a kind of ammoniacal ſalts, and by being longer and longer expoſed to the action of the veſſels and heat of the blood, they more and more approach to an alcaline nature, and at length would become actually alcaline, were they not diluted, waſhed off, and corrected by aceſcent drink and diet. A perſon that lives on nothing but mere water and fleſh or fiſh, without any-thing either acid or aceſcent, ſoon contracts a very great rankneſs in all his humours; he grows feveriſh, and at length his blood grows into a ſtate of putrefaction.

The blood of thoſe that die of famine becomes highly acrimonious, which begets fever, phrenſy, and ſuch a degree of putrefaction as is utterly deſtructive of the vital principles. A very melancholy inſtance of which I once met with in a poor gentleman, who obſtinately ſtarved himſelf to death, and would not for many days, either by force or perſuaſion, ſwallow any kind of food, or a drop of liquor. He ſoon grew feveriſh, flushed in his face, and very hot in his head; his pulſe was ſmall, but very quick; in four or five days his breath became exceedingly offenſive; his lips dry, black, parched; his teeth and mouth foul, black, bloody; his urine (when it could be ſaved) vaſtly high-coloured and ſtinking, as much as if it had been kept a month; at length he trembled continually, could not ſtand, much leſs walk, raved and dozed alternately, fell into convulſive agonies frequently, in which he ſometimes ſweated pretty much about the head and breaſt, though his extremities were quite cold, pale, and ſhrivelled; the ſweat was of a very dark yellow colour, and of a moſt nauſeous ſtench.

It is certain alſo, that if the animal ſalts are not duly and conſtantly carried off by urine, they are highly deſtructive, as in iſchuries, for they continually advance more and more to an alcaline ſtate. It is not ſo much from an encreaſed quantity, as the acrimony of the juices, that an obſtinate ſuppreſſion of urine becomes fatal; for I have known it very ſoon ſo,

where

where the patient hath very large discharges by ſweat and ſtool, during the whole time of the ſuppreſſion; particularly I remember, many years ago, a renal iſchury fatal to a corpulent lady the eleventh day from the ſtoppage, though ſhe was twice bled very largely, and kept purging the whole time, and conſequently did not die from a redundance of humours. She made not a drop of urine from the time of her ſeizure to her death, though ſhe took very largely of cantharides in ſubſtance and tincture, as well as many other medicines, particularly large doſes of calomel. Indeed, although I have frequently known cantharides given with very good effect in iſchuries, yet if they do not anſwer ſpeedily, but are long continued in large quantities, I fear they co-operate with the acrid ſalts, and haſten the death of the patient, by bringing on a delirium and convulſions, as I have had the misfortune to ſee more than once.

But to the point in hand. The formation of volatile alcaline ſalts in the body, ſeems not much unlike the production of them out of the body. Let any kind of green plant, even the moſt acid, be preſſed together in a large heap, it ſoon begins to heat, and gradually grows more and more hot, to ſuch an intenſe degree at length, if the quantity be very large, as to break out into an actual flame, and this effervescence ſoon turns the whole maſs putrid, and the acid and eſſential ſalts of the plant into volatile alcalies, which may be diſtilled from the putrid maſs, and are in no reſpect eſſentially different from the volatile alcali ſalts raiſed from animal ſubſtances; both the one and the other are ultimately the effects of heat and motion on the ſalts of vegetables, and the longer and ſtronger theſe are acted upon by the force and heat of our ſolids and fluids, ſo much the more are they exalted to an alcaline ſtate, in which they are abſolutely unfit for the common uſes of life; nay, exceedingly deſtructive, if they greatly abound, as in very putrid, peſtilential, and petechial fevers, they unqueſtionably do; and therefore I think, in ſuch caſes, the exhibition of volatile alcalious ſalts to the ſick, is adding fewel to the fire, for they certainly diſſolve or break the globules of the blood, and thence more ſpeedily bring on a general putrefaction. Theſe ſalts, even applied externally to the ſkin, ſoon excite a gangrenous ulcer; and when the blood is largely ſtocked with them, it becomes a kind of firey lixivium, which is greatly deſtructive of the nervous fibrillæ, and ultima vaſcula. And this indeed would be more certainly, frequently, and ſpeedily the caſe than it is, if the plentiful uſe of acids, diluents, and ſoft mucilaginous things, in drink and diet, did not prevent it by waſhing off and correcting them, as we ſee juice of lemon and vinegar quite take off their acrimony; indeed thus managed, they are, in many diſeaſes, turned into very uſeful medicines.

Before I conclude, I beg leave to inſert the following extraordinary caſe, as it is not altogether foreign to the purpoſe:

I had lately under my care, a gentleman of fortune and family, who ſo habituated himſelf to the uſe of vaſt quantities of the volatile ſalts that ladies commonly ſmell to, that at length he would eat them in a very aſtoniſhing manner, as other people eat ſugared carraway-ſeeds. A Δριμυφαγεία with a vengeance!—The conſequence ſoon was, that he brought on a hectic fever, vaſt hæmorrhages from the inteſtines, noſe, and gums, every one of his teeth dropped out, and he could eat nothing ſolid; he waſted vaſtly in his fleſh, and his muſcles became as ſoft and flabby as thoſe of a new-born infant, and broke out all over his body in puſtules, which itched moſt intolerably, ſo that he ſcratched himſelf continually, and tore his ſkin with his nails in a very ſhocking manner; his urine was always

always exceſſively high coloured, turbid, and very fœtid. He was at laſt, with great difficulty, perſuaded to leave this pernicious cuſtom; but he had ſo effectually ruined his conſtitution, that though he rubbed on in a very miſerable manner for ſeveral months, he died tabid, and in the higheſt degree of a maraſmus; and I am perſuaded he would have died much ſooner, had he not conſtantly drank very freely of the moſt fine and generous wines, and daily uſed large quantities of aſſes-milk, and antiſcorbutic juices well acidulated with juice of Seville-oranges, lemons, &c.

But after all, I am ſo far from thinking the volatile alcali-ſalts ſhould be ſtruck out of the materia medica, and condemning their uſe in all caſes, that I am very certain they may be given with great advantage in very many. But, in truth, I ſtill except thoſe above-mentioned.

INDEX I.

OF SUBJECTS.

C.

G.

H.

Scurvy,

INDEX II.

OF AUTHORS.

INDEX III.

To the Diſſertation on the Malignant-Ulcerous Sore-Throat.

Delirium

FINIS.